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MEMORIE DELLA SOCIETÀ ENTOMOLOGICA ITALIANA

Volume 76
1997

Supplemento al Bollettino della Società Entomologica Italiana, 129 (3) (31.12.1997)

25 febbraio 1998

SOCIETÀ ENTOMOLOGICA ITALIANA via Brigata Liguria 9 Genova

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ISSN 0373-8747

MEMORIE DELLA SOCIETÀ ENTOMOLOGICA ITALIANA

Fondata nel 1869 - Eretta a Ente Morale con R. Decreto 28 Maggio 1936

Volume 76

1997

25 febbraio 1998

Supplemento al Bollettino della Società Entomologica Italiana, 129 (3)(31.12.1997)

REGISTRATO PRESSO IL TRIBUNALE DI GENOVA AL N. 76 (4 LUGLIO 1949)
Prof. Cesare Conci - Direttore Responsabile
Spedizione in Abbonamento Postale 50% - Quadrimestrale
Stampato presso PolyGrafika, Via G.B. Morgagni 35, 20129 Milano

Mem. Soc. entomol. ital, 76: 3-19 *25 febbraio 1998*

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Faunistica e biogeografia regionale dei plecotteri italiani (Plecoptera)

Riassunto - Il presente lavoro rappresenta un primo tentativo di regionalizzazione del reticolo idrografico italiano sulla base della distribuzione dei Plecotteri. Sono inoltre trattati alcuni aspetti faunistici di questo gruppo a livello della regione italiana. 49 delle 149 specie considerate risultano endemiche della regione italiana (33% circa); molte lo sono di aree di limitata estensione. L'andamento della numerosità delle specie rivela un evidente benché non lineare decremento da nord verso sud, con tre divisioni, determinate da due evidenti discontinuità, corrispondenti ai bacini del nord Italia, del centro e del sud (comprendente le isole maggiori). Viene discussa inoltre la congruenza dei dati di distribuzione relativi ai Plecotteri con l'ipotesi dell'effetto penisola. Dall'analisi di similarità sui dati distributivi relativi alle 149 specie di Plecotteri in 90 aree primarie si evidenziano tre grossi distretti. I risultati riguardanti la regionalizzazione danno indicazioni comuni a quelle fornite da altri gruppi di insetti per i quali è stata tentata una simile analisi, anche se i modelli storici e dinamici di popolamento dei diversi taxa non sempre risultano del tutto congruenti. Gli attuali dati sulla fine distribuzione dei Plecotteri nella regione italiana permettono una caratterizzazione delle linee generali di similarità ma non sono ancora così dettagliati da consentire un'analisi in rapporto alla regionalizzazione dei singoli bacini idrografici.

Abstract - *Faunistics and regional biogeography of the Italian stoneflies.*
Results of a biogeographical analysis on the distribution of Plecoptera in 90 Italian primary areas are reported. The study aims to provide a basis for detecting a zoogeographic regionalization of Italian river basin networks. Notes on faunistic and distribution of italian stoneflies are also given. The study of similarity between territorial units carried out on the basis of the presence of 149 species in the 90 areas, revealed three main districts. This pattern agrees to some extent with earlier analyses based on other groups of aquatic insects, altough the knowledge of the distribution of Plecoptera in Italy must be improved in order to allow a more detailed regionalization of the whole Italian river basin network.

Key words: Plecoptera, biogeography, regional distribution, Italy.

INTRODUZIONE

La determinazione di province e distretti biogeografici omogenei dal punto di vista del popolamento con più o meno apprezzabile discontinuità rispetto alle aree contigue, costituisce uno dei momenti della ricerca biogeografica a livello descrittivo, comunemente definito regionalizzazione. Le aree così individuate possono costituire oggetto di ulteriore approfondimento in merito alle cause che hanno dato origine ai relativi popolamenti, nella fase di biogeografia interpretativa.

Da alcuni anni stiamo attuando un piano di ricerca volto alla regionalizzazione dei sistemi reici italiani utilizzando come descrittori alcuni dei principali gruppi di insetti che popolano i corsi d'acqua (Audisio et al., 1988, 1994, 1995; Belfiore & D'Antonio, 1991; Belfiore et al., 1992; Bonafaccia, 1993). Questo approccio, di tipo integrato, permette di ottenere come "sottoprodotti" dell'analisi principale anche informazioni dettagliate sulla

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faunistica dei gruppi studiati, lo stato di conservazione degli ambienti reici, la struttura delle comunità a invertebrati e insieme di verificare modelli stabiliti di comune distribuzione geografica (Vigna Taglianti et al., 1992).

Il presente contributo, oltre a discutere brevemente alcuni aspetti generali della biogeografia dei Plecotteri italiani, è un primo tentativo di regionalizzazione del reticolo idrografico italiano sulla base della distribuzione di questo gruppo. I principali risultati sono inoltre confrontati con le indicazioni provenienti dall'analisi di altri gruppi di insetti anfibiotici, alla luce delle principali ipotesi di ricostruzione biogeografica del popolamento faunistico della regione italiana.

MATERIALE E METODI

La consistenza numerica del gruppo guida considerato, la conoscenza dei problemi di sistematica e di tassonomia relativi allo stesso e la sua significatività biogeografica rappresentano fattori importanti dell'analisi biogeografica. I Plecotteri sono a questo proposito un ottimo soggetto per studi a carattere biogeografico, stante l'origine antica dell'ordine, la generale stenoecia che li caratterizza e che limita la loro distribuzione ad ambienti particolari, la scarsa attività dispersiva che essi presentano e la buona conoscenza della loro sistematica. L'intero ordine è rappresentato nell'Italia politica da 144 specie (Fochetti, 1994), circa un terzo di quelle che compongono la plecotterofauna europea, alle quali sono state aggiunte in questa trattazione le 5 specie presenti esclusivamente in Corsica, incluse per la ovvia unitarietà paleogeografica dell'intero sistema sardo-corso. Le conoscenze sulla distribuzione di questo gruppo in Italia possono dirsi oggi di livello e consistenza apprezzabili, anche se per alcune regioni, soprattutto del centro sud, disponiamo ancora di dati piuttosto frammentari o disomogenei.

Come fonte primaria di dati è stato utilizzato il materiale della collezione C. Consiglio, recentemente catalogata (Fochetti, in prep.) e conservata presso il Museo di Zoologia del Dipartimento di Biologia Animale e dell'Uomo dell'Università "La Sapienza" di Roma, e della collezione privata di uno di noi (R. F.), insieme a quello, per la verità molto scarso, conservato nelle collezioni dei principali musei italiani. Questi dati sono stati integrati con un'ampia ricerca bibliografica, condotta su riviste italiane ed estere, dei contributi riguardanti i Plecotteri pubblicati negli ultimi 150 anni. In questo caso non si è tenuto ovviamente conto di alcune segnalazioni poco attendibili, spesso opera di non specialisti, quando esse non fossero direttamente verificabili. Non sono stati inoltre affrontati alcuni problemi a carattere tassonomico e faunistico non ancora sufficientemente analizzati, inclusi quelli relativi ad alcune specie recentemente descritte o segnalate come nuove per la regione italiana (Ravizza e Ravizza Dematteis, 1993, 1994, 1995; Vinçon et al., 1995). Queste ultime, quindi, non sono state incluse nella presente analisi, e in tutti i casi è stata comunque adottata una soluzione conservativa.

L'ambito geografico considerato ed i criteri per la suddivisione del reticolo idrografico italiano in aree discrete, nonché i problemi ad essa connessi, sono già stati esposti in Audisio et al. (1988, 1994, 1995), Belfiore (1994), Belfiore et al. (1992) e ad essi si rimanda per un'analisi di dettaglio. Sono state individuate e delimitate in questo modo 96 aree primarie (Audisio et al., 1995), che rappresentano singole unità diversificate al loro interno, sia ecologicamente che geograficamente, e che mantengono un buon grado di comparabilità

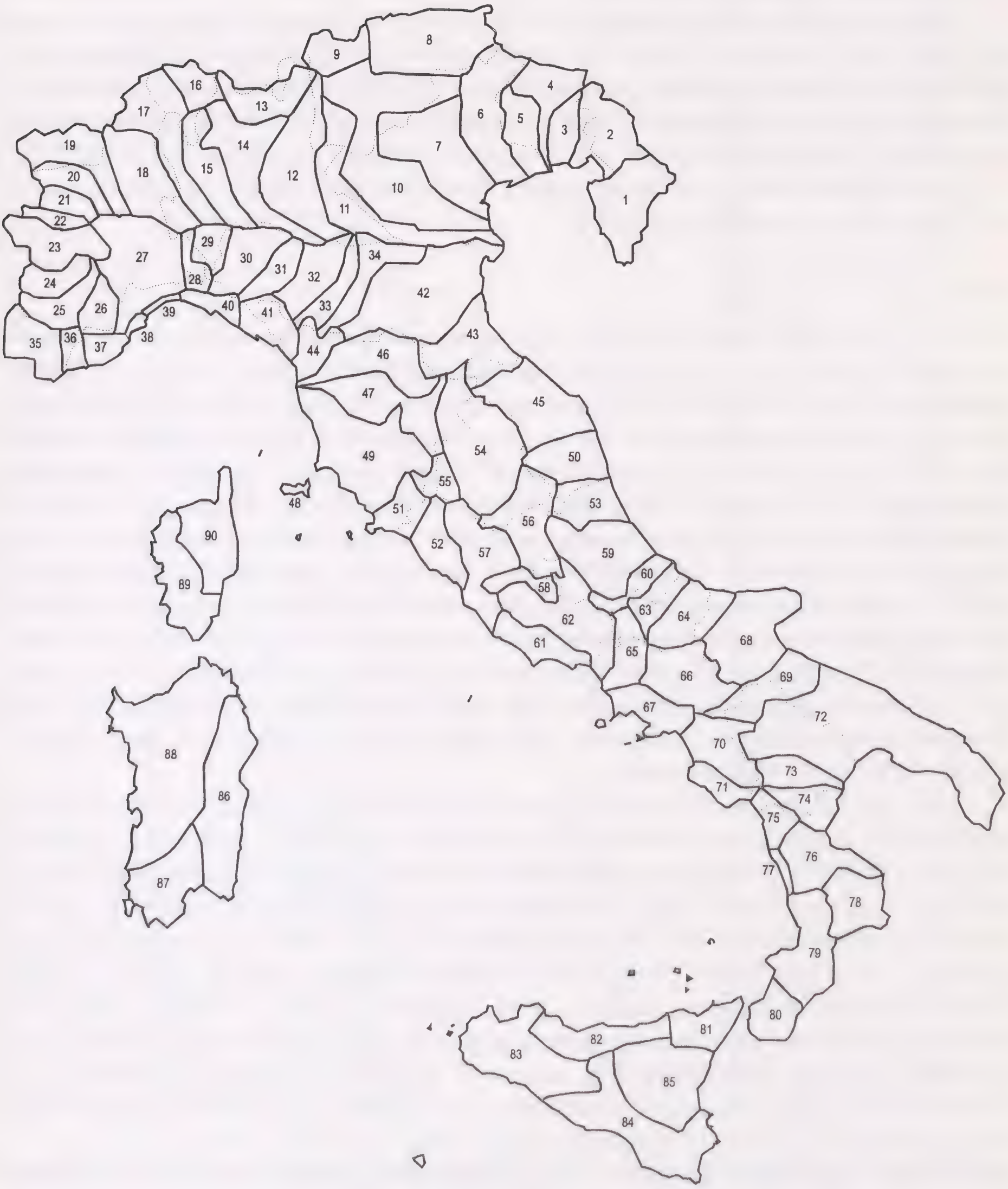

Fig. 1. Mappa delle 90 aree primarie dell'Italia geografica considerate nella presente indagine.

reciproca. A causa dell'assenza di segnalazioni di Plecotteri relative ad un certo numero di aree primarie, alcune di queste sono state arbitrariamente accorpate (la zona 48 con la zona 50, 65 con 66, 71 con 69, 75 e 76 con 77, 83 con 85: tab. 1). Il numero iniziale di aree primarie si è così ridotto a 90 (fig. 1).

I dati ottenuti sono stati tabulati sotto forma di matrice binaria (149x90; tab. 2) in base alla quale è stata condotta un'analisi di somiglianza tra le aree primarie considerate utilizzando l'indice di similarità di Baroni-Urbani & Buser (1976). I risultati così ottenuti sono stati elaborati per mezzo dell'analisi dei cluster impiegando, anche per una migliore comparabilità con quelli dei lavori citati in precedenza, l'algoritmo UPGMA (Sneath & Sokal, 1973).

Per ovvi motivi di spazio viene omesso l'elenco dettagliato delle aree primarie, per le quali si rimanda ad Audisio et al. (1995).

RISULTATI

DATI FAUNISTICI. Nella fig. 2 è visibile l'andamento della distribuzione delle specie nelle aree primarie considerate. Si evidenziano due marcate riduzioni della ricchezza in specie, rispettivamente in corrispondenza delle aree di transizione tra i bacini del nord Italia e quelli del centro, e tra questi ultimi e quelli del sud (isole comprese). In termini numerici si osserva inoltre un certo decremento nel numero di specie da nord verso sud, a partire dai bacini delle regioni alpine. Parallelamente alla più o meno graduale diminuzione del numero di specie, si riscontra nelle zone del centro sud la presenza di aree faunisticamente molto povere, dove le segnalazioni sono ridotte o addirittura assenti, a causa spesso della carenza di indagini ma anche in seguito alla riduzione ed alla scomparsa di habitat idonei all'insediamento di Plecotteri. La ricchezza in specie mostra dei picchi significativi a livello dei bacini del Friuli orientale, del Piemonte meridionale e della Liguria occidentale, in corrispondenza delle ben note aree-filtro di penetrazione faunistica da est e da ovest nell'Italia settentrionale. Più a sud si possono osservare altri picchi relativi nell'Appennino tosco-emiliano, in quello laziale-abruzzese e in quello calabro-lucano.

Nella fig. 3 è riportato il numero di specie di Plecotteri delle regioni politiche dell'Italia amministrativa e della Corsica. Nella fig. 4 è possibile osservare la distribuzione regionale delle specie, divise in quattro classi arbitrarie di numerosità. Quattro regioni (Puglia, Molise, Sardegna e Corsica) contano meno di 16 specie, altre quattro (Toscana, Umbria, Campania e Basilicata) annoverano tra 16 e 30 specie. In nove regioni si rileva un numero di specie superiore a 30 (Val d'Aosta, Friuli, Veneto, Emilia-Romagna, Marche, Abruzzo, Lazio, Calabria e Sicilia). Le rimanenti quattro regioni (Piemonte, Liguria, Lombardia e Trentino-Alto Adige) presentano un numero di specie maggiore di 60. Questi dati hanno naturalmente una valenza relativa, dipendendo dalla minore o maggiore estensione delle regioni, dal numero di corsi d'acqua presenti e dal numero di ricerche effettuate, che ha una distribuzione ovviamente non omogenea. L'isolamento di lunga data del sistema insulare sardo-corso è probabilmente responsabile del ridotto numero di specie ivi presenti, essendo limitatissima la capacità dispersiva dei Plecotteri e quindi la possibilità di colonizzazione dal continente, in presenza inoltre (almeno per la Sardegna) di un numero ridotto di habitat favorevoli a disposizione. Pur tenendo presente che il già citato decremento di specie lungo un asse nord-sud potrebbe essere un dato di fatto (ovvero non spiegabile solo con la carenza di ricerche mirate), e supponendo comunque che l'effettivo numero di specie nelle aree a bassa

Tab. 1. Numerazione delle aree primarie adottata nel presente lavoro e corrispondenza con quelle di Audisio et al., 1995.

Numerazione in uso nel presente lavoro	Audisio et al., 1995
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45

Numerazione in uso nel presente lavoro	Audisio et al., 1995
46	46
47	47
48	49
49	48, 50
50	51
51	52
52	53
53	54
54	55
55	56
56	57
57	58
58	59
59	60
60	61
61	62
62	63
63	64
64	65, 66
65	67
66	68
67	69, 71
68	70
69	72
70	73
71	74
72	75, 76, 77
73	78
74	79
75	80
76	81
77	82
78	84
79	83, 85
80	86
81	87
82	88
83	89
84	90
85	91
86	92
87	93
88	94
89	95
90	96

diversità non si discosti drasticamente da quello medio delle regioni contigue, è comunque evidente da questi dati come lo sforzo di ricerca debba essere focalizzato soprattutto in alcune aree del centro sud.

È da notare come alcune specie ad ampia distribuzione in Europa mostrino in Italia una presenza limitata ad aree ristrette (ad es.: *Perla illiesi*, *Dinocras megacephala*, *Protonemura algovia*, *Brachyptera seticornis*, *Taeniopteryx schoenemundi*). In particolare la maggior parte

di esse è limitata al Friuli-Venezia Giulia. Questa regione, di fatto, rappresenta una zona di soglia per elementi provenienti dalle Alpi Dinariche, dal bacino del Danubio e dagli alti e bassi Tauri, mentre le Alpi costituiscono un serio ostacolo alla dispersione di molte delle altre specie strettamente centroeuropee.

ENDEMISMI. Nella regione italiana sono presenti 44 specie endemiche di aree più o meno vaste; altre 5 specie sono endemiche della Corsica per un totale di endemismi che rappresenta il 33% circa delle specie italiane s.l. Alcune di queste mostrano una distribuzione ampia nella regione italiana: *Isoperla andreinii, I. saccai, Nemoura hesperiae, Protonemura ausonia, P. caprai, P. costai, P. salfii, P. tyrrhena, Leuctra apenninicola, L. concii, L. elisabethae e L. pasquinii.* Le rimanenti sono invece endemiche di aree meno estese. In particolare, molte di queste, pari al 25% circa delle specie endemiche, limitano la loro presenza a bacini idrografici di singole regioni del nord Italia: *Nemoura oropensis*, *N. pesarinii*, *Protonemura bipartita*, *P. elisabethae*, *P. julia*, *Leuctra auberti, L. brevipennis*, *L. caprai*, *L. festai*, *L. ligurica*, *L. meridionalis* e *L. vesulensis*. Il 18% delle specie endemiche ha invece distribuzione prevalente nel centro sud: *Isoperla ilvana*, *I. oenotriae*, *Brachyptera calabrica*, *Nemoura lucana*, *Protonemura hirpina*, *P. italica*, *P. macrura*, *Leuctra costai*, *L. silana*. Da notare che il solo genere *Protonemura* presenta ben 18 elementi endemici su 31 specie presenti in Italia s. l.

Considerazioni a parte merita la plecotterofauna delle maggiori isole (inclusa la Corsica), dove si osserva un predominante carattere endemico. Il 33% circa di tutte le specie endemiche risiede esclusivamente o prevalentemente (con sporadiche segnalazioni nelle altre regioni del sud) in queste isole: *Isoperla hyblaea*, *I. insularis*, *Protonemura bucolica*, *P. consiglioi*, *P. corsicana*, *P. helenae*, *P. ichnusae*, *P. lagrecai*, *P. sicula*, *Leuctra annae*, *L. archimedis*, *L. budtzi*, *L. costai*, *L. cyrnea*, *L. fraterna*, *Capnioneura petricola.*

A conclusione di queste osservazioni a carattere faunistico è però opportuno segnalare che, a causa del sempre maggiore degrado delle nostre acque correnti (soprattutto a livello dei bassi corsi fluviali ai quali erano associate alcune specie esclusive), molte specie di Plecotteri si possono ormai considerare estinte nel nostro paese. È il caso di *Brachyptera trifasciata*, *Isogenus nubecula*, *Isoperla obscura*, *Perla burmeisteriana*. Altre, che rappresentano circa il 10% dell'intera plecotterofauna italiana, sono ridotte a poche popolazioni e quindi seriamente minacciate di estinzione: *Besdolus ravizzarum* (= *Dictyogenus ventralis)*, *Isoperla hyblaea*, *I. ilvana*, *I. oenotriae*, *Perla bipunctata*, *Chloroperla tripunctata*, *Xanthoperla apicalis*, *Taeniopteryx schoenemundi*, *T. stankovitchi*, *Brachyptera monilicornis*, *B. seticornis*, *Nemoura lucana*, *Protonemura helenae*, *Leuctra geniculata*, *Tyrrhenoleuctra zavattarii*. Molte di queste sono endemiche della regione italiana e la loro eventuale estinzione sarebbe dunque un evento irreparabile. Il rischio di drastica riduzione della naturale diversità della plecotterofauna italiana e la conseguente banalizzazione sono evidenti anche da questi pochi dati.

REGIONALIZZAZIONE L'analisi del dendrogramma di similarità (fig. 5) relativo alle 90 aree primarie considerate nel presente lavoro evidenzia, a un livello di somiglianza del 40%, alcuni raggruppamenti diversi per consistenza numerica e omogeneità. Tra questi i più significativi sono quelli sommariamente composti dalle aree 2-25, 26-85 e 86-90, che vengono di seguito descritti, interpretati e commentati. I rimanenti gruppi (aree primarie isolate o piccoli raggruppamenti di aree primarie biogeograficamente incongruenti) sono di difficile interpretazione, probabilmente accomunati dallo scarso livello delle attuali conoscenze faunistiche, e poco o per niente significativi dal punto di vista della regionalizzazione.

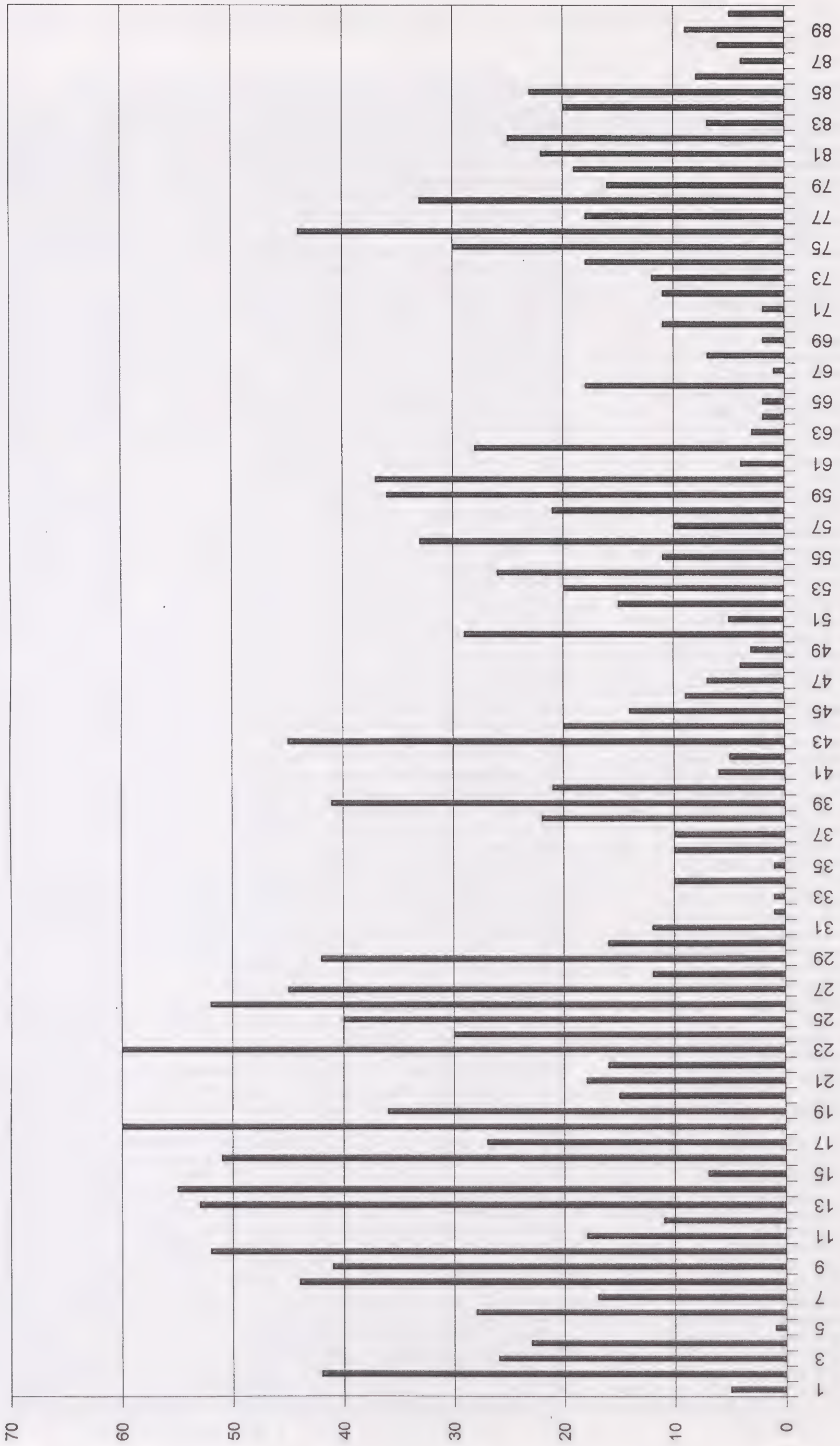

Fig. 2. Andamento della numerosità delle specie di Plecotteri italiani nelle 90 aree primarie.

Tab. 2. Matrice di presenza/assenza delle 149 specie italiane s.l. di Plecotteri nelle 90 aree primarie (0 = assenza; 1 = presenza).

	0000000001 1111111112 2222222223 3333333334 4444444445 5555555556 6666666667 7777777778 8888888889 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890
Dictyogenus alpinus (Pictet, 1842)	0101011111 1111010110 1011100000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Dictyogenus fontium (Ris, 1896)	0010011111 1011011100 1001000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Dictyogenus ventralis (Pictet, 1841)	0000000100 0000000000 0000000001 1000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Isogenus nubecula Newman, 1833	0000000000 1000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Perlodes intricatus (Pictet, 1841)	0100010011 1011010110 1011110000 0001000000 0000000001 0000000000 0000000000 0000000000 0000000000
Perlodes jurassicus Aubert 1946	0000011000 0001000110 1101100000 0000000000 0000000001 0000000000 0000000000 0000000000 0000000000
Perlodes microcephalus (Pictet, 1833)	0111010101 1111010110 1111110000 0000000000 0010000000 0000000001 0000000000 0000010100 0000000000
Isoperla andreinii (Festa, 1938)	0000000000 1000000100 0000001010 0000000001 0000000000 0101000010 0100000000 0000000000 0000000000
Isoperla carbonaria Aubert, 1953	0000000000 0001000111 1011111110 0000010110 1011000000 0000010000 0000010000 0111111101 1100100000
Isoperla grammatica (Poda, 1761)	0010000111 1011111101 1011111010 0101000010 0011100000 0101111110 1000111101 0010010111 1111100000
Isoperla hyblaea Consiglio, 1961	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0001100000
Isoperla illyrica Tabacaru, 1971	1000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Isoperla ilvana Consiglio, 1958	0000000000 0000000000 0000000000 0000000000 0000000100 0000000000 0000000000 0000000000 0000000000
Isoperla insularis (Morton, 1930)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000011111
Isoperla lugens (Klapalek, 1923)	0001000100 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Isoperla obscura (Zetterstedt, 1840)	0000000011 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Isoperla oenotriae Consiglio, 1967	0000000000 0000000000 0000000000 0000000000 0000000000 0000000001 0000000000 0000000000 0000000000
Isoperla orobica Ravizza, 1975	0000000000 0001000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Isoperla oxylepis (Despax, 1936)	0000000000 0000000000 0010000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Isoperla rivulorum (Pictet, 1842)	0100011111 1111011111 1011111011 0000000111 0010000000 0000000001 0000000000 0011110000 0000000000
Isoperla saccai (Festa, 1939)	0000000000 0000000000 0000010000 0000000000 0010010001 0010011111 0100010001 0001110100 0000000000
Dinocras cephalotes (Curtis, 1827)	1110000111 1010010010 0011101001 0000000011 0011010001 0011010111 0000010001 0000111110 1100100000
Dinocras ferreri (Pictet, 1841)	0000000000 0011011000 1100011100 0000000111 0010001000 0000000010 0000000000 0000000000 0000000000
Dinocras megacephala (Klapalek, 1907)	0100000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Perla bipunctata (Pictet, 1833)	0000010001 0000000100 0000000001 1000010000 0000000000 0000001000 0000000000 0000010001 0000000000
Perla burmeisteriana Claassen, 1936	0000000000 0000000000 0100000000 0000000001 0000000000 0000000000 0000000000 0000000000 0000000000
Perla grandis (Rambur, 1841)	0110000111 0011011111 1111111010 0001000000 0011000001 0010010011 0100010001 0000110100 1101100000
Perla illiesi Braasch e Joost, 1971	0100000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Perla marginata (Panzer, 1799)	1110000111 0011111110 0111111110 0000001111 1111111000 0101101100 0100000000 0000111011 0100000000
Chloroperla susemicheli Zwick, 1967	0111001111 0001000110 0010011000 0000000000 0000000001 0000000000 0000000000 0000000000 0000000000
Chloroperla tripunctata (Scopoli, 1763)	0110001011 0011111111 0011100001 1001001000 0000000001 0100000110 0000010000 0000111111 0000000000
Siphonoperla montana (Pictet, 1841)	0000000011 0011010110 0010110000 1000000001 0000000000 0010000000 0000000000 0000000000 0000000000
Siphonoperla torrentium (Pictet, 1841)	0000000111 1010000110 0011011110 0000000111 0111010101 0111011011 0100010001 0111111111 1101100000
Xanthoperla apicalis (Newman, 1836)	0000000011 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010100 0000011111
Taeniopteryx kuehtreiberi Aubert, 1950	0010000001 0010010010 0011000000 0000000000 0000000001 0010000011 0000000000 0000000000 0000000000
Taeniopteryx nebulosa (Linneo, 1758)	0000000000 0000000000 0000000000 0000000000 0010000000 0000000000 0000000000 0000000100 0000000000
Taeniopteryx schoenemundi (Mertens, 1923)	0000000001 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Taeniopteryx stankovitchi Ikonomov, 1978	0000000000 0000000000 0000000000 0000000000 0000000000 1100010000 0000000000 0000000000 0000000000
Brachyptera auberti Consiglio, 1957	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010110
Brachyptera calabrica Aubert, 1953	0000000000 0000000000 0000000000 0000000000 0000000000 0000010011 0000010000 0111111111 1111100000
Brachyptera monilicornis (Pictet, 1841)	0000000011 0000000000 0000001000 0000000010 0000000010 1101000000 0000000000 0000000000 0000000000
Brachyptera risi (Morton, 1836)	1100010000 0001000000 0010010100 0000000110 0010100010 1111110011 0110000000 0000010101 1111100000
Brachyptera seticornis (Klapalek, 1902)	0000000100 0000000100 0000000000 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000
Brachyptera trifasciata (Pictet, 1832)	0000000001 0000000100 0100000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Rhabdiopteryx alpina Kuehtreiber, 1934	0000000111 1011010101 1011110000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Rhabdiopteryx neglecta (Albarda, 1889)	0100000101 1011010010 0001110010 0000000000 0011001001 0000010111 0110000000 0011111111 1101100000
Amphinemura standfussi, (Ris, 1836)	0000010110 0001000000 0000001000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Amphinemura sulcicollis (Stephens, 1836)	0100010111 1011010101 1111111010 0001010011 1011101001 0011010011 0100010001 0000010111 1100000000
Amphinemura triangularis (Ris, 1902)	0110000011 0001000100 0010000010 0000000001 0010000000 0011010111 0000010000 0000110010 0100000000
Nemoura cinerea (Retzius, 1783)	0110011111 1011110110 0110011010 0001001011 1011111001 0011111111 1101110111 0111111111 0000100000
Nemoura flexuosa Aubert, 1949	0000000100 0000000000 0000101010 0000010010 0000000000 0101110010 0000000000 0000010100 0000000000
Nemoura fulviceps Klapalek, 1902	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 1111100000
Nemoura hesperiae Consiglio, 1960	0000000000 0000000000 0000011010 0000000010 0010000001 0001011011 0100000001 0000000000 0000100000
Nemoura illiesi Mendl, 1968	0111000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Nemoura lucana Nicolai e Fochetti, 1991	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0100000000 0000000000
Nemoura marginata (Pictet, 1835)	0110001111 0000000000 0000000000 0000000010 0010000000 0000000100 0000000000 0000000000 0000000000
Nemoura minima Aubert, 1946	0111000001 0001000000 0010010000 0000001100 0000000000 0000000000 0000000000 0000000000 0000000000
Nemoura mortoni (Ris, 1902)	0111000111 0011011111 0011111010 0000011110 0000000000 0000000000 0000000000 0000000000 0000000000
Nemoura obtusa (Ris, 1902)	0000001100 0111011110 1100110010 0001010010 0010000000 0000000000 0000000000 0000000000 0000000000
Nemoura oropensis Ravizza e Ravizza Dematteis, 1980	0000000000 0000000100 0010000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Nemoura palliventris Aubert, 1953	0000000000 0000000000 0010000000 0000010100 0010110001 0001010111 0100010000 0111111110 1111100000
Nemoura pesarinii Ravizza e Ravizza Dematteis, 1979	0000000000 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Nemoura sinuata (Ris, 1902)	0000001111 0011011110 0011011010 0000000110 0000000000 0000000000 0000000000 0000000000 0000000000
Nemoura uncinata Despax, 1934	0000000000 0000000000 0010010000 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000
Nemoura undulata (Ris, 1902)	0000010010 0010000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Nemurella pictetii Klapalek, 1900	0111011111 0011011111 0110111000 0000000111 0010000000 0000000000 0000000000 0000000000 0000000000
Protonemura algovia Mendl, 1968	0000000010 0110000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura auberti Illies, 1954	0111011101 0001000100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura ausonia (Consiglio, 1955)	0000000000 0000000000 0010000011 1000000010 0110000001 0101111111 0100000100 0000110001 0000000000
Protonemura austriaca Theischinger, 1976	0110000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura beatensis (Despax, 1929)	0000000000 0000000000 0000001011 1000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura bipartita Consiglio, 1962	0000000001 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura brevistyla (Ris, 1902)	0010011111 0111011110 0010110000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura bucolica (Consiglio, 1957)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000010
Protonemura caprai (Aubert, 1954)	0000000000 0000000100 1011000110 0000010111 1111110001 0011010011 0000000000 0000000000 0000000000

	0000000001 1111111112 2222222223 3333333334 4444444445 5555555556 6666666667 7777777778 8888888889 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890
Protonemura consiglioi (Aubert, 1953)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0001111100 1100000000
Protonemura corsicana (Morton, 1930)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000011
Protonemura costai (Aubert, 1953)	0000000000 0000000000 0000000000 0000000000 0001000000 0000110000 0100000000 0000000000 0000000000
Protonemura elisabethae Ravizza, 1976	0000000000 0000000000 0000000101 1000000000 0010000000 0000000000 0000000000 0000000000 0000000000
Protonemura helenae Nicolai, 1985	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0001000000
Protonemura hirpina (Consiglio, 1958)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010000 0000000000 0000000000
Protonemura ichnusae (Consiglio, 1957)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000011100
Protonemura intricata (Ris, 1902)	0100000001 0011011100 0011111110 0000000010 0011101001 0011010111 0100010001 0001111100 0001000000
Protonemura italica (Aubert, 1954)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010000 0000000000
Protonemura julia Nicolai 1983	0100000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura lagrecai (Aubert, 1954)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010000 1101100000
Protonemura lateralis (Pictet, 1836)	0111011111 1111011111 1111111110 0000001100 0010000000 0000000000 0000000000 0000000000 0000000000
Protonemura macrura (Aubert, 1953)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0001111111 0000000000
Protonemura meyeri (Pictet, 1841)	0000000000 0000010000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010110 0000000000
Protonemura nimborella (Mosely, 1930)	0000000010 0110010110 0010111000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura nimborum (Ris, 1902)	0101000111 1011010001 0010111000 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura nitida (Pictet, 1836)	0100010111 0111010110 0010111000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Protonemura praecox (Morton, 1894)	0000000110 0001000000 0010011010 0000000010 0010000001 0010000011 0000000000 0000010110 1001000000
Protonemura ruffoi Consiglio 1961	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0110111100 1111100000
Protonemura salfii (Aubert, 1954)	0000000000 0000000000 0000000000 0000000000 0010000001 0010010111 0100000000 0001111100 0000000000
Protonemura sicula Consiglio, 1961	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 1101100000
Protonemura tyrrhena (Festa, 1938)	0000000000 0000000000 0000000110 0000000010 0101100101 0101010101 1101010110 0001111000 1101000000
Capnia bifrons (Newman, 1839)	0000010000 0000100000 0110001010 0001000010 0010000100 1101001111 0010000100 0000000000 0000000000
Capnia nigra (Pictet, 1833)	0000000111 0011011010 0010100000 0001000000 0000000000 0000000001 0000000000 0111111100 0100100000
Capnia vidua Klapalek, 1904	0101010000 0011011010 0010000000 0000000000 0000000000 0010000000 0000000000 0000000000 0000000000
Capnioneura nemuroides Ris, 1905	0000000000 0000000000 0000010010 0000000000 0010000001 0000000000 0000000000 0100000000 0100100000
Capnioneura petricola Giudicelli, 1967	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000010
Capnopsis schilleri (Rostock,1892)	0000000000 0000000000 0000000011 1001000001 0011000010 0001000000 0000000000 0000010101 0000000000
Leuctra albida Kempny, 1899	0110000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra alpina Kuehtreiber, 1934	0101000000 0011011110 0010111010 1000011110 0011100001 0000010011 0100000000 0000110000 0000000000
Leuctra annae Consiglio, 1975	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010000
Leuctra apenninicola Ravizza, 1988	0000000000 0000000000 0000011011 1000000010 0011000000 0001000000 0000000000 0000000000 0000000000
Leuctra archimedis Consiglio, 1968	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 1101100000
Leuctra armata Kempny, 1899	0111001111 0011010110 0010010000 0000001000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra auberti Ravizza e Ravizza Dematteis, 1985	0000000000 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra autumnalis Aubert, 1948	0001000000 0001000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra boreoni Aubert, 1962	0000000000 0000000000 0000011011 1000100010 0010000000 0000000000 0000000000 0000000000 0000000000
Leuctra braueri Kempny, 1898	0111010101 0011010100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra brevipennis Ravizza, 1978	0000000000 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra budtzi Esben Petersen, 1912	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010010
Leuctra caprai Festa, 1939	0000000000 0000001100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra cingulata Kempny, 1899	0101010110 0010010100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra concii Consiglio, 1958	0000000000 0000000000 0000011010 0000000011 0010000001 0000010000 0000000000 0000000000 0000000000
Leuctra costai Aubert, 1953	0000000000 0000000000 0000000000 0000000000 0000000000 0000000011 0100000000 1001110101 1100100000
Leuctra cyrnea Consiglio e Giudicelli, 1965	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000010
Leuctra dolasilla Consiglio, 1955	0000011101 0011010100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra elisabethae Ravizza, 1985	0000000000 0001000101 0011110111 1000000011 1010000001 0010000000 0000000000 0000010001 0000000000
Leuctra festai Aubert, 1954	0000000000 0000000100 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra fraterna Morton, 1930	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000010
Leuctra fusca (Linneo, 1758)	0110000111 0011010000 1011011010 0000000011 0010000000 0101110101 0100000000 0000110100 1111100000
Leuctra geniculata (Stephens, 1836)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010101
Leuctra handlirschi Kempny, 1898	1101000100 0011010000 0010011011 0000000111 0011010000 0111010011 0100010001 0010111101 0000000000
Leuctra hexacantha Despax, 1940	0000000101 0001100000 0001011010 0000000010 0010000001 0000110111 0100000000 1001110101 0000000000
Leuctra helvetica Aubert, 1956	0001010001 0001001100 0011100000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra hippopus Kempny, 1899	0100010001 0111111100 0111111011 0000011111 0011100001 1111110111 1100010100 0101111111 0000000000
Leuctra inermis Kempny, 1899	0100010111 0111011110 0011111010 0000000110 0011100001 0011010111 0100010001 0111110110 1101100000
Leuctra insubrica Aubert, 1949	0000000000 0010010111 1000001111 0010000011 0011111001 0001011010 0000000100 0000000000 0000000000
Leuctra leptogaster Aubert, 1949	0010000001 0011010100 0010111010 0000000011 0010000000 0000110111 0100000000 0000110100 1101100000
Leuctra ligurica Aubert, 1962	0000000000 0000000000 0000011000 0000000110 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra major Brinck, 1949	0101110000 1011011100 0010101010 0000001010 0000000000 0000000011 0000000000 0000110000 0000000000
Leuctra meridionalis Aubert, 1951	0000000000 0010011110 0110000010 0000000010 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra mortoni Kempny, 1899	0000000111 0010010000 0110100000 0000000000 0000100000 0011010111 0100000000 0000000000 0000000000
Leuctra moselyi Morton, 1929	0000000111 0011010100 0010111000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra nigra (Olivier, 1811)	0000000100 0010011100 0010011000 0000000110 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra niveola Schmid, 1947	0000000000 0011011000 0010111011 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra pasquinii Consiglio, 1958	0000000000 0000000000 0000011010 0000000010 0010000000 0000000011 0100000000 0000000000 0000000000
Leuctra rauscheri Aubert, 1957	0101000011 0011010111 0010110000 0000000000 0010000001 0000010011 0100000000 0000000000 0000000000
Leuctra rosinae Kempny, 1900	0111010101 1011011111 0010110000 0000000000 0000000000 0000000001 0100000000 0000000000 0000000000
Leuctra schmidi Aubert, 1946	0000000000 0000000110 0010100000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra sesvenna Aubert, 1953	0000000000 0010010110 0011000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra silana Aubert, 1953	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000010000 0000000000
Leuctra teriolensis Kempny, 1900	0101011111 0011011110 1011111000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Leuctra vesulensis Ravizza e Ravizza Dematteis, 1984	0000000000 0000000000 0010000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000
Tyrrhenoleuctra zavattarii (Consiglio, 1956)	0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000000000 0000011101

Il gruppo 2-25 è rappresentativo della plecotterofauna dell'arco alpino e presenta limite occidentale nella zona di transizione alpino-appenninica e limite orientale nell'area 2, che include i fiumi Isonzo, Iudrio e Natisone, escludendo l'Istria.

Il secondo cluster individuato (26-85) comprende le aree primarie incluse nell'Italia peninsulare, aggregando anche la Sicilia. A livelli più alti di similarità (60% circa) sono chiaramente visibili in questo cluster i raggruppamenti di aree primarie della Calabria (72-80) e della Sicilia (81-85).

L'ultimo cluster ottenuto in base all'analisi di similarità è relativo al sistema insulare sardo-corso (aree 86-90) a conferma di ciò che si poteva supporre a priori sulla base di presupposti paleogeografici e sui dati faunistici relativi a molti altri gruppi di vertebrati e di invertebrati.

DISCUSSISONE E CONCLUSIONI

I risultati ottenuti utilizzando i Plecotteri come taxon guida per la regionalizzazione dei sistemi reici italiani sono piuttosto interessanti, soprattutto alla luce dei confronti con studi analoghi effettuati su altri gruppi tassonomici (Audisio et. al., 1988, 1995; Belfiore, 1994; Belfiore & D'Antonio, 1991; Belfiore et al., 1992; Bonafaccia, 1993). Il confronto con gli Efemerotteri è possibile solo per quel che riguarda le aree primarie dell'Italia centrale, meridionale, Sicilia e Sardegna, questo gruppo essendo stato analizzato con sufficiente accuratezza solo limitatamente a queste aree geografiche. Le differenze riscontrate in ordine ai raggruppamenti di aree primarie individuati dimostrano come, data la differente ecologia e la peculiare storia evolutiva dei diversi gruppi di insetti che popolano le acque correnti, i modelli storici e dinamici di popolamento non sempre siano sovrapponibili nei vari gruppi, pur mostrando un sostanziale accordo per quel che riguarda i principali aspetti della ricostruzione biogeografica.

Si riscontra per le aree primarie del sistema sardo-corso un'elevata omogeneità (70% di somiglianza intrinseca nei Plecotteri) ed una buona congruenza con i risultati ottenuti in base alla fauna a *Hydraena* s. l. (Audisio et al., 1988, 1995) per quanto riguarda soprattutto il netto isolamento di questo sistema e le percentuali di endemismo. In questo sistema insulare Plecotteri e *Hydraena* s. l. presentano infatti un popolamento assolutamente distinto, composto prevalentemente da specie endemiche. La percentuale di elementi endemici è del 70% per le *Hydraena* s. l. e raggiunge l'80% nei Plecotteri (mentre risulta solo del 40% negli Efemerotteri: Belfiore, 1994), confermando la grande specificità di molti gruppi dulcacquicoli delle due isole. Una certa affinità tra il sistema sardo-corso e l'area 48 (Arcipelago Toscano), evidente nelle *Hydraena* s.l., non è invece rilevabile nei Plecotteri, sulla base dei quali il complesso insulare toscano si trova sempre e comunque aggregato alle contigue zone costiere della Maremma. L'esistenza in passato di una connessione tra le due terre ("ponte tosco-sardo") è stata ipotizzata e largamente discussa sulla base di contingenti faunistici simili anche per altri animali, a es. gli Oligocheti terricoli (Omodeo & Rota, 1987), per i quali si osservano popolamenti nelle due zone costituiti da una comune fauna arcaica alla quale si è aggiunto un contingente più recente, probabilmente sopraggiunto in seguito alla crisi di salinità a cui è andato incontro il Mediterraneo alla fine del Miocene. Già Consiglio (1963) aveva discusso per i Plecotteri le ipotesi di affinità tra queste due zone, escludendo peraltro scambi faunistici quaternari, anche sulla base di considerazioni ecologiche.

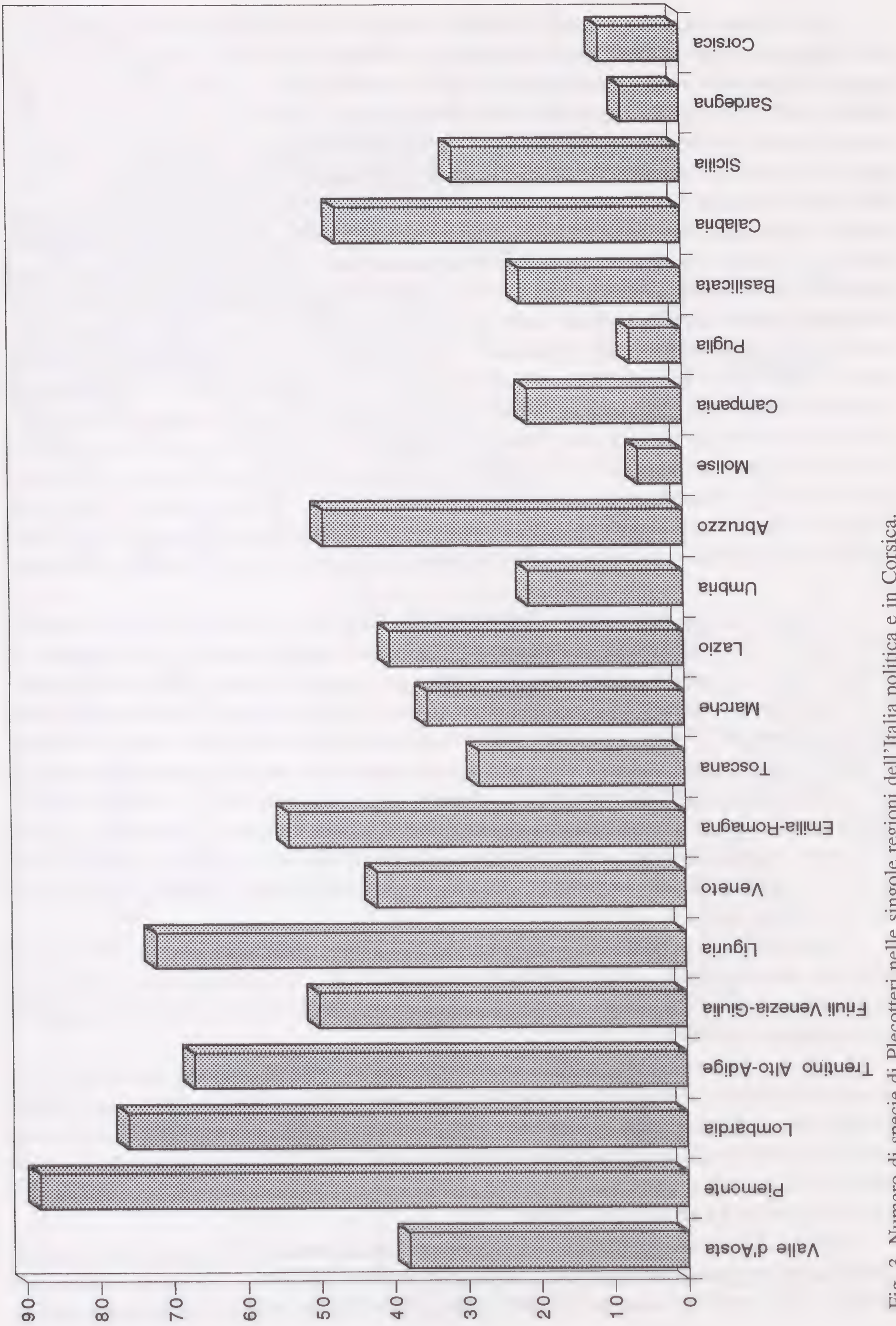

Fig. 3. Numero di specie di Plecotteri nelle singole regioni dell'Italia politica e in Corsica.

La Sicilia risulta, nella regionalizzazione ottenuta utilizzando i Plecotteri come descrittori, aggregata al cluster dell'Italia peninsulare, a testimonianza della somiglianza con la plecotterofauna delle zone appenniniche più che con le altre isole. La somiglianza tra le aree primarie dell'Isola risulta essere molto alta, determinando comunque una specificità e una coerenza interna a questo raggruppamento. Il popolamento non appare discontinuo rispetto a quello dell'Italia meridionale in nessuno dei gruppi acquatici finora studiati (Audisio et al., 1988, 1995; Belfiore & D'Antonio, 1991; Belfiore et al., 1992). Questo dato contrasta ad esempio con quanto rilevato da Biondi (1988) per i Crisomelidi Alticini, sulla base dei quali Sardegna e Sicilia sono invece aggregate a formare un unico distretto biogeografico. I Plecotteri e gli Idrenidi di Sicilia mostrano un andamento distributivo piuttosto simile, probabilmente dettato dalla situazione idrologica di quest'isola, che possiede molti più corsi d'acqua nella parte settentrionale rispetto alle zone meridionali, a carattere più arido. Nessuna specie di *Hydraena* s. l. è endemica, mentre lo sono 4 su 27 (quasi il 15%) nei Plecotteri; due di queste sono presenti solamente sui Monti Iblei. Sulla base di questi due gruppi tassonomici, la Sicilia risulta più somigliante alla Calabria meridionale, grosso modo a sud di una ipotetica linea che va dalla Catena Costiera al Crotonese. Leggere differenze si riscontrano invece nel confronto con la efemerotterofauna di Sicilia (Belfiore et al., 1992): solamente 1 specie di Efemerotteri, su 30 note, è endemica, e la somiglianza espressa da questo gruppo con l'Italia meridionale si estende a una più vasta area rispetto a quella indicata per Plecotteri e *Hydraena* s. l.

La composizione della fauna a Plecotteri della Sicilia (cfr. anche Ravizza & Gerecke, 1991) mostra come ad una fauna arcaica, di origine paleomediterranea, si sia aggiunta in epoche recenti e comunque post-glaciali, una fauna più "banale" di provenienza appenninica. Sotto il profilo ecologico le specie che popolavano gli antichi territori calabro-siculi erano adattate a quote non elevate. In seguito all'avvicinamento della Sicilia alla penisola italiana nel Quaternario, la plecotterofauna appenninica, composta da specie provenienti per buona parte dall'Europa centro settentrionale e adattata a ruscelli e torrenti a corrente veloce, penetrava nella catena montuosa settentrionale, non riuscendo tuttavia a colonizzare la parte centro meridionale dell'isola, sia per le diverse caratteristiche idrologiche dei corsi d'acqua che per la presenza del braccio di mare in via di prosciugamento che tagliava la Sicilia in due parti (La Greca, 1984).

Risalendo lungo la penisola si nota un deciso isolamento delle aree pugliesi, dovuto alle condizioni idrogeologiche che determinano una carenza di corsi d'acqua e la conseguente povertà faunistica. Tale situazione è ovviamente sovrapponibile a quella degli altri gruppi di insetti acquatici reofili.

I dati sui Plecotteri dell'Italia centrale, non ancora sufficientemente dettagliati, non permettono una fine caratterizzazione della discontinuità nell'ambito di questa zona rispetto alle altre aree dell'Italia peninsulare. Negli Efemerotteri e nelle *Hydraena* s.l. si evidenzia invece, con notevole congruenza e con differenze veramente marginali, una marcata fascia di transizione che corre diagonalmente alla penisola, tra le foci del Tevere a sud ovest e del Cesano a nord est (Audisio et al., 1994).

Il limite di continentalità (tra la fauna strettamente alpina e quella peninsulare) è posto a livello delle aree corrispondenti all'alto e al basso corso del Tanaro, al Bormida e alla zona del medio corso del F. Po compresa tra il F. Scrivia, il F. Staffora ed il F. Tidone (aree 26-29).

Fig. 4. Numero di specie di Plecotteri, divise in quattro classi arbitrarie di numerosità, in Corsica e nelle regioni amministrative, rappresentate schematicamente, dell'Italia politica.

A nord di questa demarcazione le aree primarie si aggregano in un'unica vasta area alpina pur non evidenziandosi, sulla base dei dati a oggi disponibili, ulteriori suddivisioni significative. Questo piccolo gruppo di aree rappresenta probabilmente anche un'area di transizione tra i distretti alpino e appenninico, con una discontinuità riscontrata anche a livello delle aree della Liguria occidentale (36-39), tradizionalmente identificate come zona di separazione tra le faune alpine e appenniniche. Ciò è in buon accordo con quanto riscontrato per le *Hydraena* s. l., anche se in questi Coleotteri si evidenzia un ulteriore isolamento di un gruppo di aree ligustico-provenzali (aree 25, 35, 36, 37) dal resto delle aree alpine (Audisio et al., 1988, 1995). Le aree 30-33, corrispondenti al corso principale del F. Po, tra le foci dei fiumi Trebbia e Parma, e al F. Secchia, rappresentano, almeno per i dati e i risultati ottenuti (posizioni isolate e livelli minimi di similarità), un'area di povertà faunistica almeno in parte determinata dall'attuale situazione degradata dei corsi d'acqua della zona. Questa condizione secondaria certamente limita l'accuratezza della lettura di fenomeni di transizione biogeografica che probabilmente interessano l'intero medio corso del F. Po comprendente le aree 26-33.

I dati sugli Efemerotteri della maggior parte delle aree primarie di queste zone, così come quelli di buona parte dell'Italia settentrionale, sono ancora carenti e non possono costituire un elemento sufficiente di confronto.

L'analisi della similarità tra le aree alpine non evidenzia nei Plecotteri ulteriori discontinuità. Nelle *Hydraena* invece, oltre alla ricordata area ligustico-provenzale, si osservano due altri raggruppamenti discreti di aree, il primo tra i bacini del Brenta e quello dell'Adige (aree 7-10) e il secondo tra quelli del Friuli orientale e le zone carso-istriane (Audisio et al., 1995). Anche nei Plecotteri però queste aree, pur senza distinguersi da quelle vicine, si caratterizzano come zone filtro per la fauna di origine centro-europea, come confermato dalla presenza di entità specifiche (*Dinocras megacephala*, *Perla illiesi* ecc.) a gravitazione medioeuropea. Considerata la buona sovrapposizione dei dati già esposti si può supporre che il miglioramento delle conoscenze sulla distribuzione dei Plecotteri in queste zone potrà portare a risultati più congruenti con quelli di altri gruppi di insetti delle acque correnti.

L'analisi dell'andamento del numero di specie lungo la penisola italiana evidenzia (fig. 2), come già accennato, dei picchi in Italia settentrionale in corrispondenza delle aree di penetrazione faunistica da est e da ovest. Altri picchi di numerosità sono rilevabili procedendo verso sud in corrispondenza dei principali gruppi montuosi (Appennino tosco-emiliano, abruzzese e calabro-lucano), in buon accordo con quanto osservato per altri gruppi di insetti di acque correnti. Tali risultanze sembrano invece in disaccordo con l'ipotesi dell'effetto penisola discussa da Massa (1982); secondo questo autore il limite di continentalità in Italia sembra essere segnato dalla Toscana, a sud della quale si osserverebbe un graduale impoverimento faunistico sulla base della densità media di specie in rapporto alla latitudine (Uccelli Columbiformi e Passeriformi; Coleotteri Carabidi, Cicindelidi e Crisomelidi; Coleotteri Scarabeoidei ecc.). Osservando come varia il numero di specie di Plecotteri e degli altri gruppi di insetti acquatici analizzati in funzione della loro distribuzione nelle aree primarie italiane, si ha piuttosto l'impressione che l'andamento sia soprattutto legato alla presenza di rilievi montuosi in grado di alimentare vasti sistemi idrici di buona e costante portata anche durante la stagione secca, adatti all'insediamento di una fauna reofila, e solo molto marginalmente alla latitudine o alla peninsularità.

In definitiva si può affermare che, mentre i dati di distribuzione sui Plecotteri sono

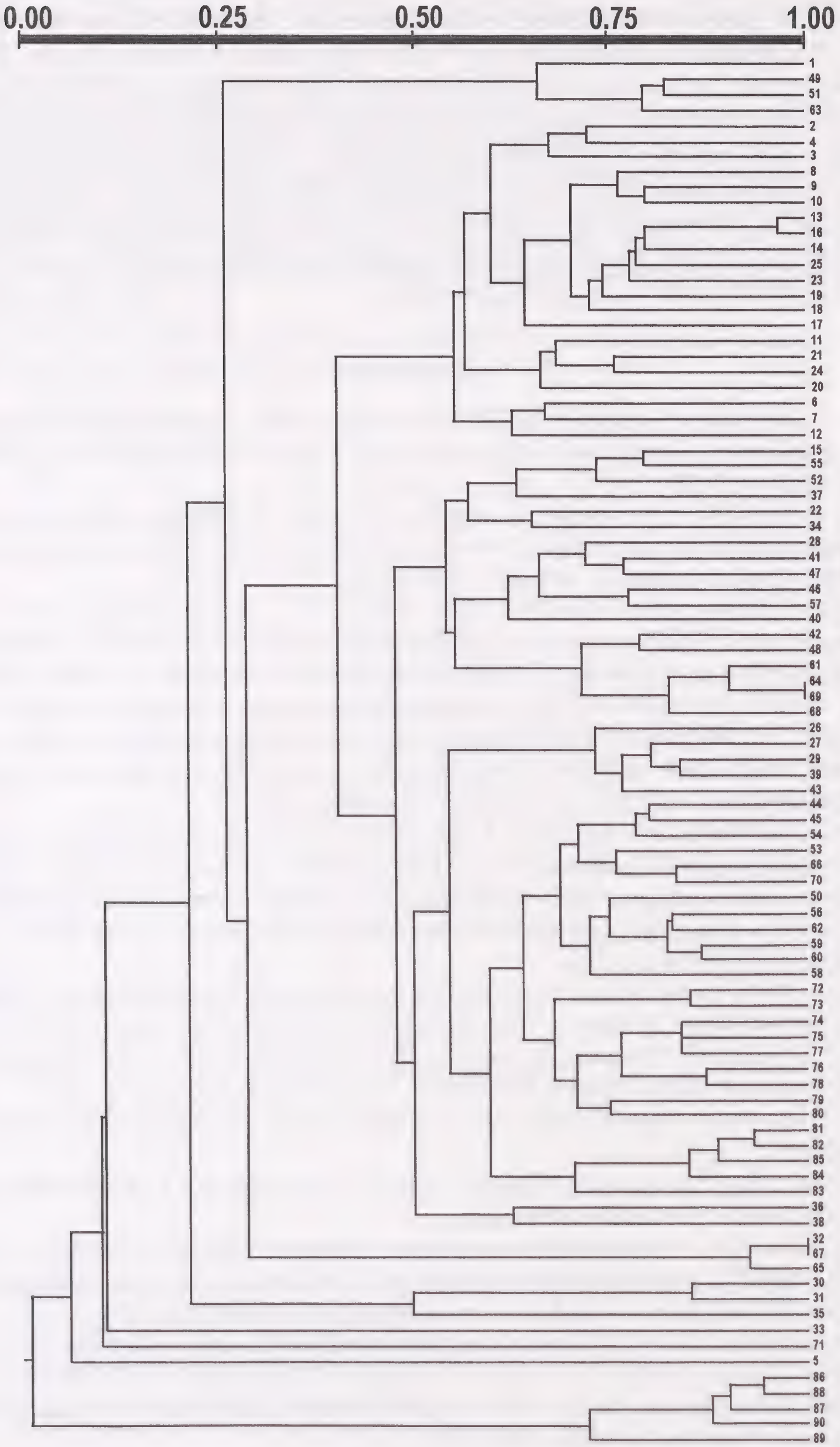

Fig. 5. Dendrogramma di similarità tra le 90 aree primarie considerate, in base alla distribuzione delle specie italiane di Plecotteri. (Indice di Baroni Urbani e Buser (1976); analisi dei cluster secondo il metodo UPGMA; coefficiente di correlazione cofenetico = 0.81).

buoni per quel che riguarda la comprensione delle linee generali di similarità tra i gruppi principali di bacini idrografici, essi non sono ancora in alcune aree del nostro paese così dettagliati da permettere un'analisi fine in rapporto alla regionalizzazione del reticolo idrografico. La povertà di conoscenze per l'Italia peninsulare si somma talvolta alla povertà faunistica dovuta alla scarsezza d'acqua, contribuendo a rendere meno interpretabili in termini di somiglianza le attuali distribuzioni dei taxa confrontati. Un adeguamento delle conoscenze sulla faunistica di questo gruppo di insetti è l'obiettivo immediato per la migliore comprensione dei fenomeni che hanno plasmato i nostri sistemi reici. La buona rispondenza del metodo e la sostanziale sovrapposizione di risultati riscontrata nel confronto con altri gruppi di insetti legati alle acque correnti suggeriscono infine l'utilità di questo approccio nella ricerca biogeografica di livello descrittivo.

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Mem. Soc. entomol. ital, 76: 21-59 *25 febbraio 1998*

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Taxonomic review of the genus *Stomis*, with revision of the Chinese species (Coleoptera Carabidae)

Abstract - In this work the genus *Stomis* Clairville is placed in a monogeneric tribe, Stomini Gené, 1839. The species of *Stomis* (sensu lato) are arranged in two subgenera, *Stomis* (sensu stricto) = *Stobeus* Fairmaire = *Eustomis* Semenov, and *Neostomis* Bousquet. In the Chinese material available, 12 species are recognized, eight of which are new as follows: from Sichuan, S. *facchinii*, *S. titanus*, *S. robustus*, *S. vignai*; from Gansu, *S. brivioi*; and from Yunnan, *S. farkaci*, *S. gigas* and *S. schoenmanni*. Distribution of postulated apomorphic character states indicates that these species comprise five monophyletic groups.

Riassunto - *Revisione degli* Stomis *cinesi, con descrizione di otto specie nuove (Coleoptera Carabidae)* In questo lavoro il genere *Stomis* Clairville viene posto in una tribù monogenerica, Stomini Gené, 1839. Le specie di *Stomis* (sensu lato) vengono suddivise in due sottogeneri, *Stomis* (sensu stricto) = *Stobeus* Fairmaire = *Eustomis* Semenov, and *Neostomis* Bousquet. Tra il materiale esaminato della Cina sono state riconosciute 12 specie, otto delle quali inedite: S. *facchinii*, *S. titanus*, *S. robustus* e *S. vignai* del Sichuan, *S. brivioi* del Gansu e *S. farkaci*, *S. gigas* e *S. schoenmanni* dello Yunnan. La distribuzione di caratteri ritenuti apomorfi sembra indicare che queste specie si ripartiscono in cinque gruppi monofiletici.

Key words: Carabidae, *Stomis*, China, taxonomic revision, new species.

INTRODUCTION

The genus *Stomis* Clairville is distributed discontinuously across the Palaearctic Region with 16 species known, and one species in the western Nearctic Region. From China, only four species have been described to the present, two of them only very recently. After the discovery, among the undetermined material of recent expeditions, of eight new species, I summarize here knowledge of the Chinese species of the genus, even though I am confident that many undescribed species remain to be discovered in those wide regions of China still very inadequately known from the faunistic point of view.

To provide a context for these descriptions, I discuss the relationships of *Stomis* to other pterostichines, and as well, the relationships of the Chinese species to one another.

MATERIAL AND METHODS

MATERIAL

This work is based upon study of 98 specimens from China and Central Asia, plus many representatives of European, Caucasian and Japanese *Stomis*, representing all the known species and subspecies except *S. benoiti*. Moreover, representatives of almost all Palaearctic and Nearctic subgenera of *Pterostichus* and many other genera of Pterostichini, Poecilini and Molopini were used for comparison.

Study material was obtained from the following institutions, each of which is designated by a coden used in this publication.

MHNP - Museum National d'Histoire Naturelle, Paris
MSNM - Museo Civico di Storia Naturale, Milano
NHMB - Naturhistorisches Museum, Basel
NHMW - Naturhistorisches Museum, Wien

PIME - P.I.M.E. Entomological Museum, Monza
CF - Coll. Facchini, Piacenza
CFa - Coll. Farkač, Praha
CH - Coll. Heinz, Wald Michelbach
CL - Coll. Ledoux, Clamart
CP - Coll. Pavesi, Milano
CS - Coll. Sciaky, Milano
CV - Coll. Vigna Taglianti, Roma
CW - Coll. Wrase, Berlin
CZ - Coll. Zamotajlov, Krasnodar.

METHODS

Descriptions. Since the species are either new or very scarcely known, I have tried to give complete description of all of them.

Measurements. The measurements of all species have been made with an ocular micrometer in a stereoscopic binocular microscope at 40X. The total length was measured from apex of mandibles to apex of elytron. When describing the species, I indicated as "small" a total length below 10 mm, as "medium" a total length comprised between 10 and 12 mm, as "large" a total length above 12 mm. Measurements of body parts and abbreviations used for them in the text are:

El - length of elytra from base of scutellum to apex
Ew - maximum width of elytra
Fl - length of forebody from apex of mandibles to pronotal base
Pl - length of pronotum along median line
Pw - maximum width of pronotum

Some of the index here used are relatively common, but one of them is rather new and deserves some more words. The index El/Fl indicates the different development of the forebody if compared to the elytra. It is still not clear whether a higher index is plesiomorphic, but I have observed that the species with the lowest index show more plesiomorphic character states than the species with a high index. The value expressed for all indexes in the following text represents the average value of each index calculated upon all available specimens, except in the case of *S. facchinii*, where only 15 specimens were measured. Indexes used in this publication are the following: El/Fl, Pw/Pl, El/Pl, Ew/Pw, El/Ew.

Borrowed holotypes were returned to the lending institutions and specialists. Several paratypes of my collection have been sent to institutions and private collections to extend the knowledge of the new taxa described here.

The dissections were made using standard techniques; genitalia and small parts were preserved glued to cards and pinned beneath the specimens from which they were removed.

Illustrations. The line drawings of the aedeagi were prepared using an eyepiece graticule and graph paper.

Recognition, grouping and ranking. The identity of the species already known was determined in part by comparison of the type series and in part by study of the literature. I have examined the type material of two of the species already known and material from the type locality of another one. Only of one species I have examined material from rather distant localities, but the original description seemed to fit very well the specimens in my possession.

STRUCTURAL FEATURES

Some of the most striking feature of *Stomis* are in the head, first of all the shape of the mandibles, which are very elongated, similar to those of the subfamily Promecognathinae,

except in *S. vignai*, where they are hardly longer than in any other Pterostichini. The mandibles of *Stomis* are strongly asymmetrical, with the right one larger and flatter and the left one narrower and more conical. This asymmetry is quite typical within the subfamily Pterostichinae, although here it is much more evident than in any other genus, while among the Trechinae the left mandible is usually the largest (see Jeannel, 1926: 288). In spite of this, in both groups it is the right mandible that occludes under the left. A serious problem when trying to understand the meaning of these mandibles is the almost complete lack of knowledge about the diet of *Stomis*, in fact the mandibular shape seems so strongly modified in function of some particular type of food, but we do not know anything about this point. Also the marked differences in development observed among different species could be due to different feeding specialization, but we ignore what they prey upon.

In *Stomis* it has often been written that the molar and premolar tooth and the retinacum are fused together; after my observations this is neither completely true nor so different from the structure that can be observed in most Pterostichini. The first point to note is that the great elongation of the mandibles regards mainly the terebral region (see Acorn & Ball, 1991), even though the distinction between the terebra and the retinaculum is not so clear-cut. The right mandible of *Stomis* is constantly very flat and the terebral ridge is extremely sharp. In some species a small tooth, that should be interpreted as a regressed retinacular tooth, can still be distinguished (e.g.: *S. formosus*); in other species this tooth has completely disappeared, but the terebral ridge can be either continuous or with a notch, more or less deep according to the species. The left mandible is much less flat, but rather conical, except than in the apical region, where it becomes cylindrical. The terebral ridge is not very evident, and in the basal half there is often a small tooth, sometimes very small but almost always distinguishable, that I interprete as the posterior retinacular tooth. The terebral tooth, considered as disappeared, is still present in some species but strongly moved on the superior side of the mandible, as it can be observed for instance in *S. formosus* and, less evident, in *S. titanus* and *S. gigas*. These points will be discussed in greater detail in another work, now in preparation.

Another interesting feature of *Stomis* is the great elongation of the first antennomere. This structure was already well known and had been used by several authors as distinguishing character between *Stomis* and the other genera of Pterostichini. It can be added that the antennae also show another interesting feature, first noted by Antoine (1957), that is the cylindrical shape of the intermediate antennomeres, while almost all Pterostichini these are markedly flattened.

The female genital structures were illustrated by Giachino & Sciaky (1991) for *S. pumicatus*, the stylomeres by Habu (1981c) for the Japanese species. These structures are very dissimilar from those of *Pterostichus*, but rather seem more similar to those of *Argutor* and related groups, that are certainly very distant from *Pterostichus*.

Taxonomic treatment

None of the proposals concerning the systematic position of the genus *Stomis* suggested until now seem acceptable to me: Jeannel (1942: 739) placed it in the tribe Poecilini, regarding *Pedius* Motschulsky, *Lagarus* Chaudoir (= *Argutor* Dejean), *Orites* Schaum and *Haptotapinus* Reitter as its subgenera, a position that was certainly revolutionary, but not based upon correct observation of all characters. *Pedius* certainly belongs to the phyletic line

of *Poecilus*, Bonelli; *Lagarus* is related to *Phonias* and probably neither of them really belongs to Poecilini; while *Orites* and *Haptotapinus* are true Pterostichini. Therefore none of these groups (genera or subgenera, however they may be considered) show any close relationship with *Stomis*.

Bousquet (1983) compared *Stomis* to *Pterostichus* (sensu lato), specifying that the subg. *Gastrellarius* shows some characters in common with *Stomis*, but some of the characters of *Stomis* are so unusual that I believe that an isolated position is the best solution to express the relationships of this genus. Hence, the similarities reported by Bousquet between *Stomis* and *Gastrellarius* are postulated to be symplesiomorphies.

Antoine (1957: 189, footnote 1) observed that *Stomis* shows at the same time primitive characters (cylindrical shape of the intermediate antennomeres) and derived ones (unusual length of mandibles, similar to those of the tribe Promecognathini, torsion of the left mandible, extreme length of antennomere 1, lack of setigerous punctures on elytra, etc.). Also Habu (1981b) observed that *Stomis* shows very little in common with the other groups placed near it by Jeannel. Habu (1981c) illustrated the female genitalia of the two Japanese species and of *S. pumicatus*, pointing out the remarkable differences from all the subgenera of *Pterostichus*.

Also Zetto Brandmayr & Marano (1993), studying the larval characters, have observed marked differences between the larva of *Stomis* and those of Poecilini, concluding that on the base of these characters this genus could "belong to an ancient group of Pterostichini" (Zetto Brandmayr & Marano, 1993: 35).

In the past several authors have separated *Stomis* in a distinct subtribe (for a detailed list see Bousquet, 1983: 1598), but the only recent author who proposed to separate *Stomis* (and *Eustomis*, which he regarded as a distinct genus) from the other Pterostichini is Kryzhanovskij (1983), who mentioned very briefly a subtribe Stomina in his key to the genera of the Pterostichini of the former Soviet Union.

Trying to decide what could be the correct author name for this group, I discovered that in 1839 Gené, describing the new genus *Agelaea*, wrote: "Locus in methodo inter *Cephalotides* et *Stomides*." (Gené, 1839, p. 10). Therefore, according to the Article 11f (iii) of the International Code for Zoological Nomenclature Gené's proposal is valid and has priority. I propose to separate *Stomis* from the other Pterostichinae in a tribe named Stomini Gené, 1839.

Tribe Stomini Gené, 1839

DIAGNOSIS. A tribe of Pterostichinae characterized by a marked elongation of the mandibles; labrum excised at middle; first antennal article as long, or longer than, the following two together; median antennomeres almost cylindrical, not flattened; scutellar stria absent; pore-punctures on interval three absent; aedeagus compressed, with ostium in dorsal position.

DESCRIPTION. Not required here, because the tribe is monogeneric. For details, see the description of *Stomis*, below.

HABITAT AND WAY OF LIFE. The species of this genus are generally montane, even though

a european one (*S. pumicatus*) lives at low altitude in wet and muddy places. On the other hand, another species very close to the preceding, *S. bucciarellii*, seems particularly tied to particular habitats, clay hills (called in Italian "calanchi"), which are a peculiar feature of the northern Apennines. Most other species live at rather high altitude, even though generally within the upper limit of the forest, more rarely in alpine meadows. As far as I know, nothing is known about the diet of *Stomis*.

GEOGRAPHICAL DISTRIBUTION. The tribe Stomini shows an interesting disjunct distribution, that includes a small area in west Oregon in the Nearctic region and several limited areas all along the Palaearctic region, from Spain to Japan. The majority of the species are found on the highest mountain chains (Alps, Apennines, Caucasus, Ala-Tau mountains, Chinese mountains surrounding the Sichuan plain, Japanese Alps), and their distribution recalls that of *Broscosoma* (Carabidae Broscini), another genus with relict, widely disjunct distribution, even more restrict, limited to few mountain chains from the Alps to Japan.

CHOROLOGICAL AFFINITIES. A distribution pattern that shows something in common with that of this tribe can be observed in the tribe Molopini, comprising several genera in Europe, two in the Far East (China, Japan and neighbouring regions): *Aristochroa* Tschitscherine, 1898 and *Trigonognatha* Motschoulsky, 1857) and one, with very few species, in North America: *Neomyas* Allen, 1980. The main difference is that *Neomyas* is limited to the eastern regions of North America, while *Neostomis* has been found only on the Pacific coast, in Oregon.

PHYLOGENETIC RELATIONSHIPS. It is not easy to state unequivocally the systematic position of this tribe. Certainly it belongs to the subfamily Pterostichinae, but its precise position is still unclear. Bousquet (1983) postulated a relationship with the subg. *Gastrellarius* of *Pterostichus*, but he admitted that the basis for this were very weak. The genus *Agelaea* Gené, 1839, for long time approached to *Stomis*, has later been correcly moved to the tribe Agonini (Vigna Taglianti & Franzini, 1976).

Stomis Clairville, 1806

Stomis Clairville, 1806. Type-species: *Carabus pumicatus* Panzer, 1796, by monotypy.
Stobeus Fairmaire, 1888. Type-species: *Stobeus collucens* Fairmaire, 1888, by monotypy.
Eustomis Semenov, 1889. Type-species: *Stomis (Eustomis) formosus* Semenov, 1889, by monotypy.
Neostomis Bousquet, 1983. Type-species: *Pterostichus termitiformis* Van Dyke, 1925, by original designation.

After the review of literature compiled by Bousquet (1983) little has been written about *Stomis*. The few publications are: Monzini & Pesarini (1986), revision of the Italian species with description of a new subspecies; Aberlenc, Balazuc & Réveillet (1983), redescription of *S. benoiti* Jeannel 1953 with new data on its geographic distribution; Bousquet (1988), redescription of the Chinese *Stobeus collucens* and synonymy of the genus *Stobeus* ; Marcilhac (1993), description of a new species from China, *S. deuvei*; and Ledoux & Roux (1995), description of another new species from China, *S. politus*.

Stobeus had been described as a distinct genus for one species from China by Fairmaire (1888), who had not realized the real relationship of the species; Jedlicka (1962) based his citation upon the original description and did not add any data. Bousquet (1988), after examining the type-specimen, synonymized the names *Stobeus* and *Stomis*. Marcilhac (1993)

and Ledoux & Roux (1995) considered *Stobeus* as a valid subgenus including also the new species *S. deuvei* and *S. politus*, but did not justify their assertion. The only possibly derived character allowing separation of *Stobeus* from the true *Stomis* is the metallic colour of the integument, but this character is neither always so clear-cut nor of sure taxonomic value. For these reasons I accept Bousquet's proposal to consider this name as a junior synonym of *Stomis*.

The synonymy of *Eustomis*, monobasic subgenus described by Semenov (1889) for a species from Turkestan, was proposed by Bousquet (1983). In spite of this, Kryzhanovskij et al. (1995) considered it a valid subgenus. I accept the synonymy proposed by Bousquet because the single character that should be diagnostic for *Eustomis* (pubescence of antennomere 3) varies geographically in one species from China, (*S. facchinii*). and therefore does not seem of much phylogenetic relevance. On the other hand, it is impossible to postulate a relationship between *S. facchinii* and *S. formosus*, since the size is extremely different, the color is completely non metallic in *S. formosus* and constantly metallic in *S. facchinii* and the mandibular shape is different, since *S. formosus* lacks the notch in the right mandible.

The only valid subgenus is *Neostomis* Bousquet, 1983, described for a North American species previously attributed to *Pterostichus*, *termitiformis* (Van Dyke, 1925).

DIAGNOSIS. The only genus of Stomini, characterized by first antennal segment as long as the sum of the two following together; penultimate segment of maxillary palpi with an apical row of 5-6 setae; mandibles with molar and premolar tooth and retinacum merged together; aedeagus with ostium completely dorsal.

DESCRIPTION. Body elongated, convex, sometimes metallic. Total length of body: 5 mm to 14.9 mm.

Head with 2 pairs of supraorbital setae; frontal furrows superficial to moderately deep; eyes moderately reduced to normally developed, flat to convex; anterior margin of labrum emarginate; mandibles longer than usual for Pterostichini, with molar and premolar tooth and retinacum fused; antennae elongated, pubescent from segment 4 (3 in few species), scape as long as the two following segments combined; penultimate segment of maxillary palpi with an apical row of 5-6 setae, lacinia with apex hooked or blunt; submentum with 1 pair of setae (outer pair absent), paramedian pits of mentum apparent or not, tooth of mentum entire or notched, anterior margin of ligula with 1 or 2 pairs of setae, segment 2 of labial palpi with 2 long median setae.

Pronotum almost constantly cordiform (except in *S. vignai*, herewith described); hind angles variable, from slightly acute to obtuse or completely obsolete (in *S. vignai* and *S. brivioi*); lateral groove narrow, regular; anterior transverse impression obsolescent; posteriolateral impressions single, linear, shallow; posteriolateral seta present or not.

Elytra without setiferous punctures in interval 3; scutellar stria absent; basal pore present; microsculpture on elytra isodiametric or transverse; plica of elytron normally developed.

Legs long and slender; protibia with 2 clip setae; mesofemur with 2 posterior setae on ventral side; metacoxa without internal seta; seta on metatrochanter present; metatarsal carina apparent on first 2 or 3 segments; last tarsal segment with setae on ventral side and with 1 or more pairs of setae on dorsolateral surface; claws smooth. Metepisterna as wide as long or elongated. Abdominal sternum 6 of male without secondary sexual modification.

Median lobe of aedeagus with ostium dorsal; internal sac without sclerotized tooth; right paramere relatively short, strongly bent at middle; left paramere rounded, with small lateral projection. Apical segment of stylus curved, with 1 short spine on inner side and in general 2 short spines on outer side; dorso-apical sensorial pit present and with 2 short spines. Spermatheca tubelike, smooth, evidently coiled at apex; annexed gland elongated, with ductus relatively short.

HABITAT. See above, in the description of the tribe.

GEOGRAPHICAL DISTRIBUTION. Since the tribe is monogeneric, the distribution area of the genus *Stomis* coincides with that of the tribe.

AFFINITIES. *Stomis* is a genus of Pterostichinae phylogenetically isolated by absence in the subfamily of close relatives.

Subgenus *Neostomis* Bousquet

This group is included only to complement the following treatment of the Chinese species of subgenus *Stomis*.

DIAGNOSIS. Head nearly as wide as pronotum; frontal furrows superficial; eyes slightly reduced, flat; mandibles less elongated than in the nominotypical subgenus, the left one as wide as the right one and with small protuberance on cutting edge of terebra; palpi slightly elongated (second segment of maxillary palpi about 4x as long as wide); lacinia with apex hooked; paramedian pits of mentum not apparent; tooth of mentum notched; anterior margin of ligula with 2 pairs of setae (inner pair shorter than outer pair). Pronotum without posteriolateral seta. Elytra with moderately transverse microsculpture. Last tarsal segment with 3 pairs of setae on dorsolateral surface. Metepisterna as wide as long; sides of metasternum and metepisterna non punctate.

GEOGRAPHICAL DISTRIBUTION. Limited to a small area in Oregon, where it has been collected in a variety of habitats (see Bousquet, 1983).

AFFINITES. This subgenus is the sister group and Nearctic vicar of *Stomis* (*sensu stricto*).

Subgenus *Stomis (sensu stricto)*

DIAGNOSIS. Head narrower than pronotum; frontal furrows superficial to moderately deep; eyes slightly reduced to normally developed, flat or slightly to distinctly convex; left mandible slightly to evidently narrower in distal half than right mandible and without protuberance on cutting edge of terebra; palpi slightly to distinctly elongated (second segment of maxillary palpi 4x to 6x as long as wide); lacinia with apex hooked or blunt; paramedian pits of mentum small but apparent; tooth of mentum entire; anterior margin of ligula with 1 pair of setae. Pronotum with posteriolateral seta. Elytra with isodiametric to very transverse microsculpture. Last tarsal segment with 1 to many pairs of setae on dorsolateral surface. Metepisterna as wide as long to elongated; sides of metasternum and metepisterna in general punctate.

DESCRIPTION. None required, because the character states are the same as those for *Stomis*-(sensu lato) except for the features diagnostic for *Neostomis*, noted above.

HABITAT. See above, in the description of the tribe.

GEOGRAPHICAL DISTRIBUTION. This subgenus occupies the geographical range of *Stomis*- (sensu lato), except its Nearctic portion.

Stomis (*Stomis*) *formosus* Semenov, 1889

Stobeus (*Eustomis*) *formosus* Semenov, 1889: 11. Type-locality: Turkestan.

Treatment of this species is included only to establish position of the name *Eustomis* Semenov.

Eustomis was described as a subgenus for a species from Turkestan, based on two females found near the lake Issyk-kul, on the Zailiisky Ala-Tau (Kabak in Kryzhanovskij et al., 1995). Semenov (1903) proposed raising *Eustomis* to genus-rank. The main difference from *Stomis* recorded by Semenov is the pubescence on antennomere 3.

Examination of three female specimens of this species from S-O Kazakhstan, Dzhungarsky Ala-Tau, Lepsinsk env., 1700 m. and of some other new species from China allows me to confirm the synonymy proposed by Bousquet (1983). See the discussion, above.

DIAGNOSIS. A *Stomis* of small size (5.8-6.2 mm) with forebody longer than elytra, dark brown without iridescence, elytra markedly rounded at sides, with very small humeral tooth.

DESCRIPTION. Habitus as in fig. 1. Total length 5.8-6.2 mm, the smallest known until now in the genus; body dark brown, legs and antennae reddish-brown. Head and pronotum, taken together, scarcely longer than elytra (El/Fl = .96).

Head large, smooth, narrower than pronotum; eyes small, shorter than slightly convex tempora. Collar constriction indistinct. Labrum slightly excised in middle of anterior margin. Mandibles very long, right one without notch in terebral margin, anteriad terebral tooth.

Pronotum with dorsal surface relatively convex, transverse (Pw/Pl = 1.08); sides markedly but shortly sinuate towards base, anteriolateral angles almost not protruded, posteriolateral angles acute. Anteriolateral seta behind anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, parallel in anterior half, divergent posteriorly; entire base almost smooth, only with very few, scattered points. Pro-, meso- and metasternum sparsely punctate. Legs short and rather robust. Hind wings strongly reduced, certainly not functional. El/Pl = 2.25, Ew/Pw = 1.38.

Elytra rather parallel (El/Ew = 1.51) with maximum width almost in the middle, shoulders quite narrow, completely rounded; basal margin almost perpendicular to suture, meeting lateral margin at obtuse angle. Striae strongly punctate, distinctly developed, only becoming gradually more superficial externally and apically. Intervals slightly convex on disc, flat at apex and externally.

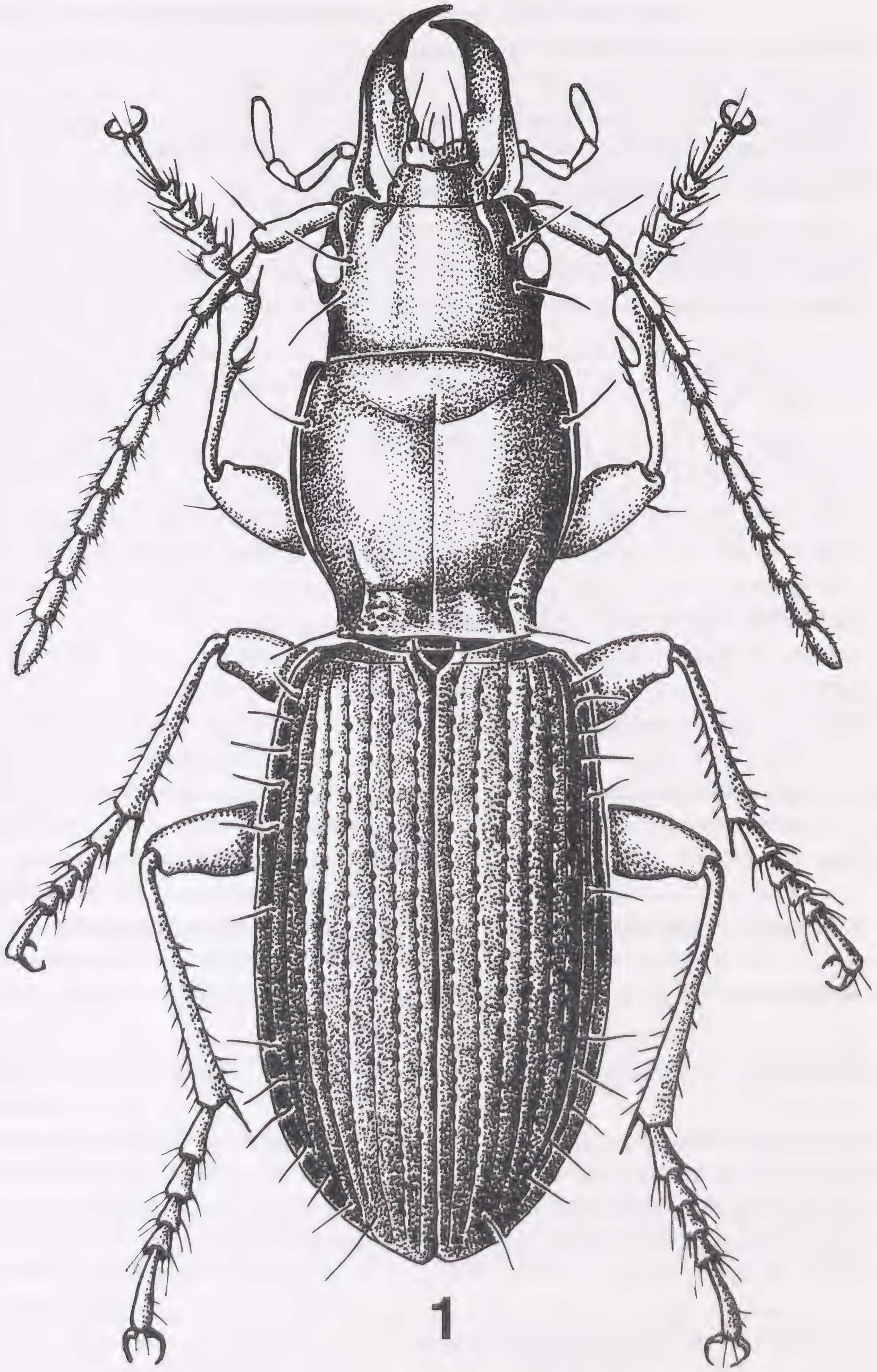

Fig. 1. Habitus of *S. formosus* Semenov, from Dzhungarsky Ala-Tau.

Key to the Chinese species of *Stomis (Stomis)* (1)

1 - Posteriolateral angles of pronotum right, obtuse or rounded at tip, sides of pronotum with change of convexity before posteriolateral angles. Sichuan, Yunnan, Gansu 2

- Posteriolateral angles of pronotum completely rounded, sides of pronotum in continuous curve, without change of convexity before posteriolateral angles. Western Sichuan . 1. *S. vignai* n. sp.

2 - Color black without metallic reflections, iridescent or not. 3

- Color dark brown with metallic reflections, more or less marked but evident in all specimens..5

3 - Humeri widely rounded, wings reduced, eyes reduced. Yunnan, southern Sichuan. 4

- Humeri well marked, wings completely developed, eyes large. Sichuan, Shaanxi ....2. *S. chinensis* Jedlička

4 - Size smaller (10.2-12.1 mm), elytra slightly rounded at sides, colour dark brown or black but not iridescent. Yunnan ..... 3. *S. schoenmanni* n. sp.

- Size larger (12.1-13.3 mm), elytra markedly rounded at sides, colour black, markedly iridescent. Southern Sichuan ..... 4. *S. robustus* n. sp.

5 - Right mandible without notch (figs. 11-15, 26). Yunnan, Southern Sichuan, Gansu 6

- Right mandible with deep notch (figs. 31-33). Western and Northern Sichuan, Northern Yunnan 9

6 - Elytra proportionally shorter and wider (length/width ratio 7

- Elytra proportionally longer and slenderer (length/width ratio 1.5). Size small or large. Gansu 8

7 - Eyes large and convex, distinctly protruded from the temporal convexity. Elytral sides convex, striae impunctate. ..... 5. *S. collucens* Fairmaire

- Eyes very small and flat, hardly protruded from the temporal convexity. Elytra almost parallel-sided, striae punctate. ..... 6. *S. politus* Ledoux

8 - Size small (7.1-8.1 mm); mandibles proportionally shorter, humeri clearly indicated .... 7. *S. deuvei* Marcilhac

- Size large (11.9-12.4 mm); mandibles extremely long, humeri completely rounded .... 8. *S. brivioi* n. sp.

9 - Size small (7.2-9.8 mm); mandibles proportionally shorter 10

- Size large (12.1-14.1 mm); mandibles extremely long. 11

10 - Antennomere 3 completely glabrous, except the large fixed setae. Colour black with vivid bronze hue. Yunnan ..... 9. *S. farkaci* n. sp.

- Antennomere 3 with sparse pubescence on apical half, or with few additional setae. Colour black, with or without greenish hue. Sichuan ..... 10. *S. facchinii* n. sp.

11 - Elytra flat; body reddish-brown with slight metallic hue, legs reddish-brown. Eyes very small. Elytral striae superficial and slightly punctate. Western Sichuan. .... 11. *S. titanus* n. sp.

- Elytra convex; body black with evident green hue, legs black. Eyes quite large. Elytral striae deep and distinctly punctate. Northern Yunnan ..... 12. *S. gigas* n. sp.

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(1) The number preceding a specific epithet indicates relative position in the text of the taxonomic treatment of the species named.

1. **Stomis (Stomis) vignai** n. sp.

TYPE-LOCALITY: China, western Sichuan, Wolong, Wuyipeg.

TYPE-SERIES. Holotypus ♂: China, western Sichuan, Wolong, Wuyipeg, 2650 m, 8.VI.1990 (CV).

SPECIFIC EPITHET. I am pleased to dedicate this very peculiar species to my dear friend and President of the Società Entomologica Italiana, Prof. Augusto Vigna Taglianti (Rome), for kindly allowing me to study interesting material collected by him.

DIAGNOSIS. A *Stomis* of small size (9.9 mm), with short mandibles, apparently very isolated in the posteriolateral angles of pronotum completely rounded and the bronzed color of the dorsum.

DESCRIPTION Habitus as in fig. 2. Total length 9.9 mm; body black with slight bronze hue, legs black with brown tarsi, antennae brown with first article black. Head and pronotum, taken together, longer than elytra (El/Fl = .98).

Head large, smooth, narrower than pronotum; eyes slightly convex. Tempora short and markedly convex, collar constriction very marked. Labrum deeply excised in middle of anterior margin. Mandibles rather short, much shorter than in any other species of the genus, right one without notch in terebral margin anteriad terebral tooth.

Pronotum with dorsal surface markedly convex, markedly transverse (Pw/Pl = 1.27); anteriolateral angles very slightly protruded, posteriolateral angles completely rounded. Anteriolateral seta almost at anterior fifth, posteriolateral one located anteriad posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, sinuate, impunctate. Pro-, meso- and metasternum densely and markedly punctate. Legs short and stout. Hind wings strongly reduced, certainly not functional. El/Pl = 2.27, Ew/Pw = 1.16.

Elytra oval (El/Ew = 1.55), with maximum width almost in middle, shoulders quite narrow without tooth; basal margin meeting lateral margin with a curve. Striae finely punctate, obliterated toward base, at apex and externally; only stria 1 extended to apex. Intervals convex on disc, flat at apex and externally.

Genitalia. Aedeagus (figs. 3, 4) with ostium rather short, in lateral view (fig. 3) uniformly curved; in dorsal view (fig. 4) asymmetrical, bent toward left, and with small apical thickening. The general structure is similar to that of *S. chinensis*, *S. robustus* and *S. schoenmanni*,

HABITAT. The single specimen of this species has been collected at an altitude of 2650 m in forest.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Known from western Sichuan, in the area around Wolong. I do not know any other species of *Stomis* from the same geographic area, even though it is not so far from Kangding, where *S. facchinii* lives. Among the few other species I have examined from the same area, I can mention *Pterostichus* (*Circinatus*) *beneshi* Sciaky, 1996, which is a geographic vicariant of *P. pohnerti* Jedlicka, 1934, distributed in the area around Kangding.

AFFINITIES. This species is the most easily recognized of all Chinese *Stomis*. The relatively small size (if compared with most Chinese species) and mainly the peculiar, rounded posteriolateral angles of pronotum isolate it not only from the Asiatic species but also from all species of *Stomis* known to day. The aedeagus is similar in form to that characteristic of the

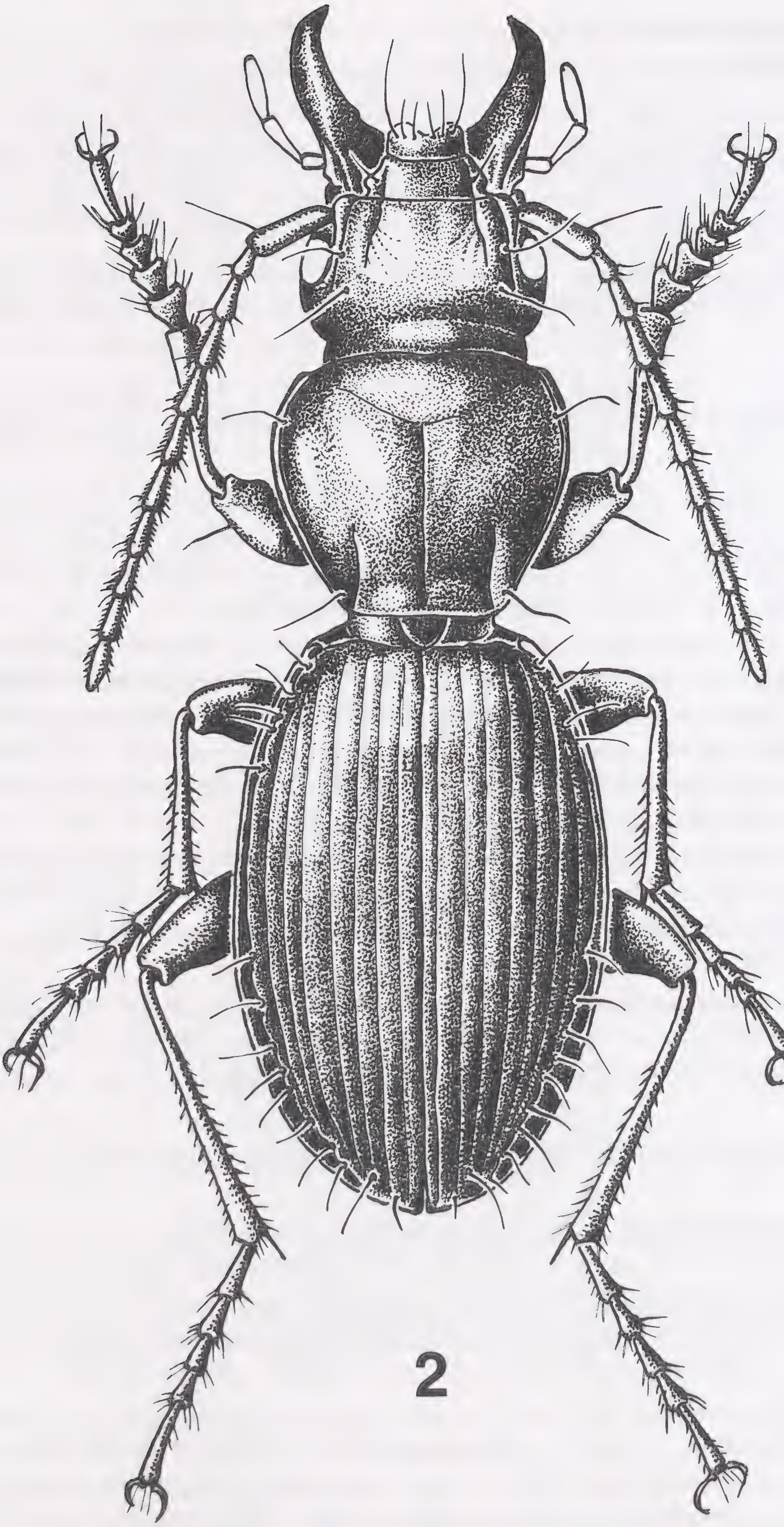


Fig. 2. Habitus of *S. vignai*, holotypus.

S. chinensis complex, but in lateral view it is more regularly curved instead of bent at right angle and in dorsal view the ostium is evidently shorter.

2. *Stomis* (*Stomis*) *chinensis* Jedlička, 1932

Stomis chinensis Jedlička, 1932: 108. Type-locality: China, Sichuan, Ginfu-shan.

Material examined: Sichuan, Wen Chuan Chien 30 mi NNW Kuanshien 4000 ft: 1 ♂; Shaanxi, Lueyang, 25-30.VII.1997: 1 ♀.

Notes on type material. I have not been able to see the single female type-specimen, but I have examined two specimens corresponding to the original description of *S. chinensis*, one male and one female, and I think that my identification is correct.

DIAGNOSIS. A *Stomis* of small size (8.0-8.9 mm) with forebody shorter than elytra, black, iridescent, elytra parallel-sided with marked shoulders; humeral tooth rather large and well developed; aedeagus relatively small, with apex simply pointed, without apical disc or tooth.

DESCRIPTION - Habitus as in fig. 11. Total length 8.0-8.9 mm; body black, legs dark brown. Head and pronotum, taken together, shorter than elytra (El/Fl = 1.02).

Head rather narrow, smooth, much narrower than pronotum; eyes large, longer than slightly convex tempora. Collar constriction slight but distinct. Labrum slightly excised in middle of anterior margin. Mandibles rather long, right one without notch in terebral margin, anteriad terebral tooth.

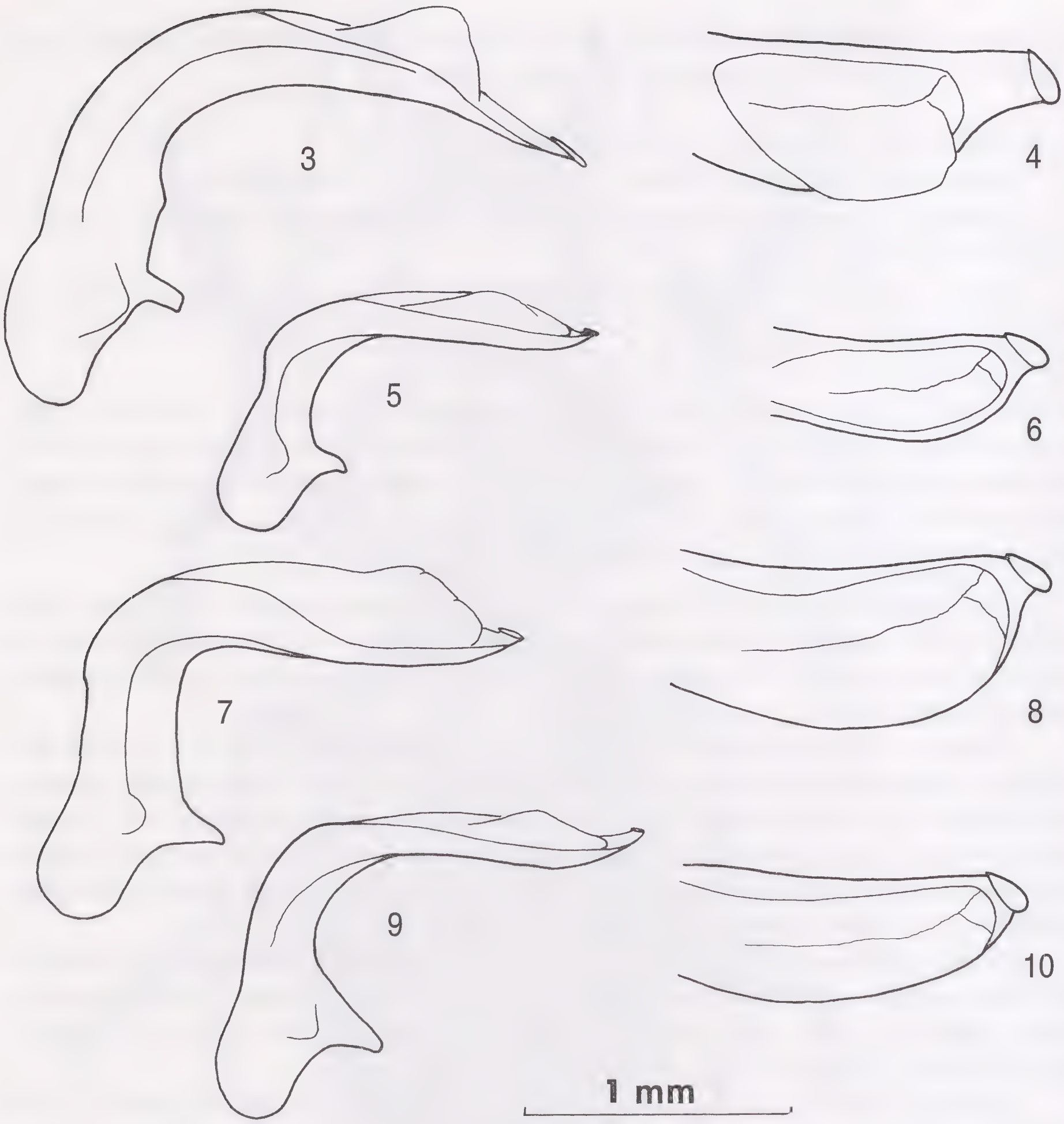
Pronotum with dorsal surface relatively convex, transverse (Pw/Pl = 1.07); sides markedly but shortly sinuate towards base, anteriolateral angles almost not protruded, posteriolateral angles right. Anteriolateral seta behind anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, wide; entire base punctate. Pro-, meso- and metasternum sparsely punctate. Legs short and rather robust. Hind wings completely developed, functional. El/Pl = 2.40, Ew/Pw = 1.37.

Elytra parallel-sided (El/Ew = 1.63) with maximum width almost at middle, shoulders very well marked, with evident tooth; basal margin almost perpendicular to suture, meeting lateral margin at obtuse angle. Striae markedly punctate, distinctly developed, complete. Intervals slightly convex on disc, flat at apex and externally.

Aedeagus (Figs. 5, 6) with ostium very long, in lateral view (fig. 5) with apical portion much longer than basal one, markedly depressed, with apex simply pointed, without apical disc or tooth. In dorsal view (fig. 6) with apex asymmetrical, bent toward left, and with small apical thickening.

HABITAT This species has been collected at an altitude of 4000 feet (about 1300 m). Being the only fully winged species of this genus in China, it is possible that it lives at much lower altitudes than the other known species. Since at low altitude the Chinese landscape is almost everywhere very intensively cultivated, it will be particularly difficult to find this species again. I ignore the altitude of the Shaanxi specimen.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Described from a locality in Sichuan, I know it from another locality in Sichuan and one in Shaanxi. It has not been easy to find the two localities in Sichuan to put on the map, because neither "Ginfushan" nor "Wen Chuan Chien" exist on recent Chinese maps. I have interpreted as "Ginfushan" the Jinfu Shan, a mountain of 2251 m about 100 km SE of Chongqing, in south Sichuan, while the only toponym similar



Figs. 3-10. Aedeagus in lateral and dorsal view of: 3-4, *S. vignai* n. sp., holotypus; 5-6, *S. chinensis* Jedlička, from Wen Chuan Chien; 7-8, *S. robustus* n. sp., holotypus; 9-10, *S. schoenmanni* n. sp., holotypus.

to "Wen Chuan Chien" is Wenquan, a small village in north Sichuan, not far from the border of Shaanxi.

AFFINITIES. This species, *S. robustus* and *S. schoenmanni* share a marked similarity in form of the aedeagus and they are the only three species from China that lack metallic color of the integument. Accordingly, I believe that they form a distinct monophyletic complex in relation to the other Chinese species of *Stomis*. Further, because of the geographical proximity of *S. robustus* and *S. schoenmanni*, I believe that these two species are more closely related to one another than either is to *S. chinensis*.

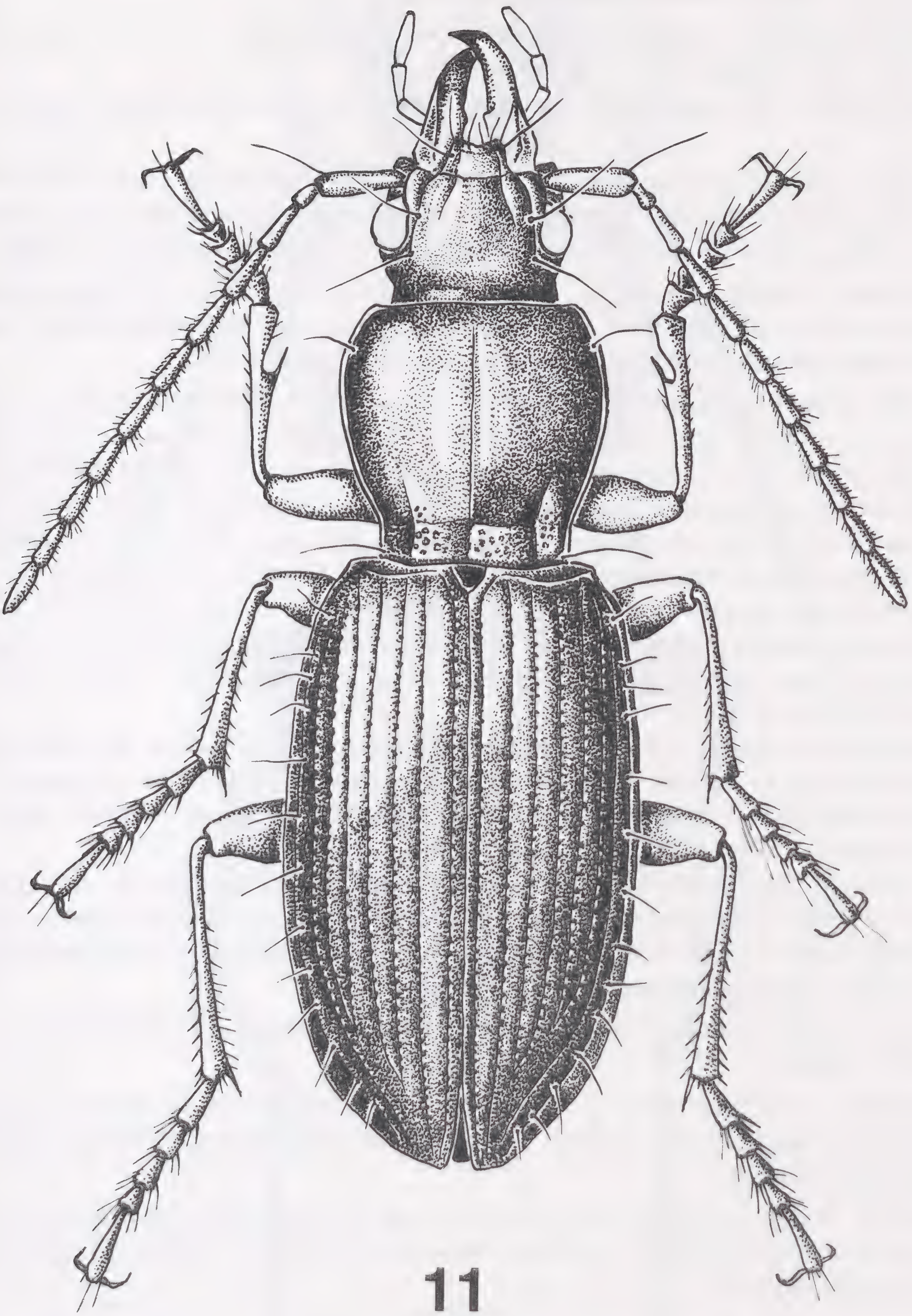


Fig. 11. Habitus of *S. chinensis* Jedlička, from Wen Chuan Chien.

3. **Stomis (Stomis) robustus** n. sp.

TYPE-LOCALITY. China, S Sichuan, 30 km NW Muli-Bowa.

TYPE-SERIES. Holotypus ♂: China, S Sichuan, 30 km NW Muli-Bowa, 3500 m, mixed forest, 24.VII.1995, (CS). 1 paratype ♂, same data as holotype, (CF).

SPECIFIC EPITHET. The name of this species alludes to the very large size and robust body shape.

DIAGNOSIS. A *Stomis* of very large size (12.1-13.3 mm) with forebody longer than elytra, black with marked iridescence, elytra markedly rounded at sides, with very small humeral tooth; aedeagus relatively small, with apex simply pointed, without apical disc or tooth.

DESCRIPTION - Habitus as in fig. 12. Total length 12.1-13.3 mm, one of the largest known until now in the genus; body black, femora black, tibiae and tarsi dark reddish-brown. Head and pronotum, taken together, scarcely longer than elytra (El/Fl = .96).

Head large, smooth, narrower than pronotum; eyes small, shorter than slightly convex tempora. Collar constriction indistinct. Labrum slightly excised in middle of anterior margin. Mandibles extremely long, right one without notch in terebral margin, anteriad terebral tooth.

Pronotum with dorsal surface relatively convex, transverse (Pw/Pl = 1.08); sides markedly but shortly sinuate towards base, anteriolateral angles almost not protruded, posteriolateral angles rounded. Anteriolateral seta behind anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, parallel in anterior half, divergent posteriorly; entire base punctate. Pro-, meso- and metasternum sparsely punctate. Legs long but rather robust. Hind wings strongly reduced, certainly not functional. El/Pl = 2.25, Ew/Pw = 1.38.

Elytra oval (El/Ew = 1.51) with maximum width anteriad middle, shoulders quite narrow, with very small tooth; basal margin almost perpendicular to suture, meeting lateral margin at obtuse angle. Striae almost impunctate, distinctly developed, complete. Intervals slightly convex on disc, flat at apex and externally.

Aedeagus (Figs. 7, 8) relatively small, with ostium very long, in lateral view (fig. 7) with apical portion much longer than basal one, slightly depressed, with apex simply pointed, without apical disc or tooth. In dorsal view (fig. 8) with apex asymmetrical, bent toward left, and with small apical thickening.

HABITAT. The two specimens of this species have been collected in mixed forest at an altitude of 3500 m.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Known from a single locality in south Sichuan, not far from the borders of Yunnan, where *S. schoenmanni* lives; the two species are probably geographical vicariants.

AFFINITIES. In spite of its large size, this species has no relationship with *S. titanus* and *S. gigas*, but seems to be related to *S. chinensis* and *S. schoenmanni*. For details, see "Affinities" under *S. chinensis*, above.

4. **Stomis (Stomis) schoenmanni** n. sp.

TYPE-LOCALITY: China, NW Yunnan, Yulongshan NP near Baishui.

TYPE-SERIES. Holotypus ♂: China, NW Yunnan, Yulongshan NP near Baishui, 2500-3200 m,

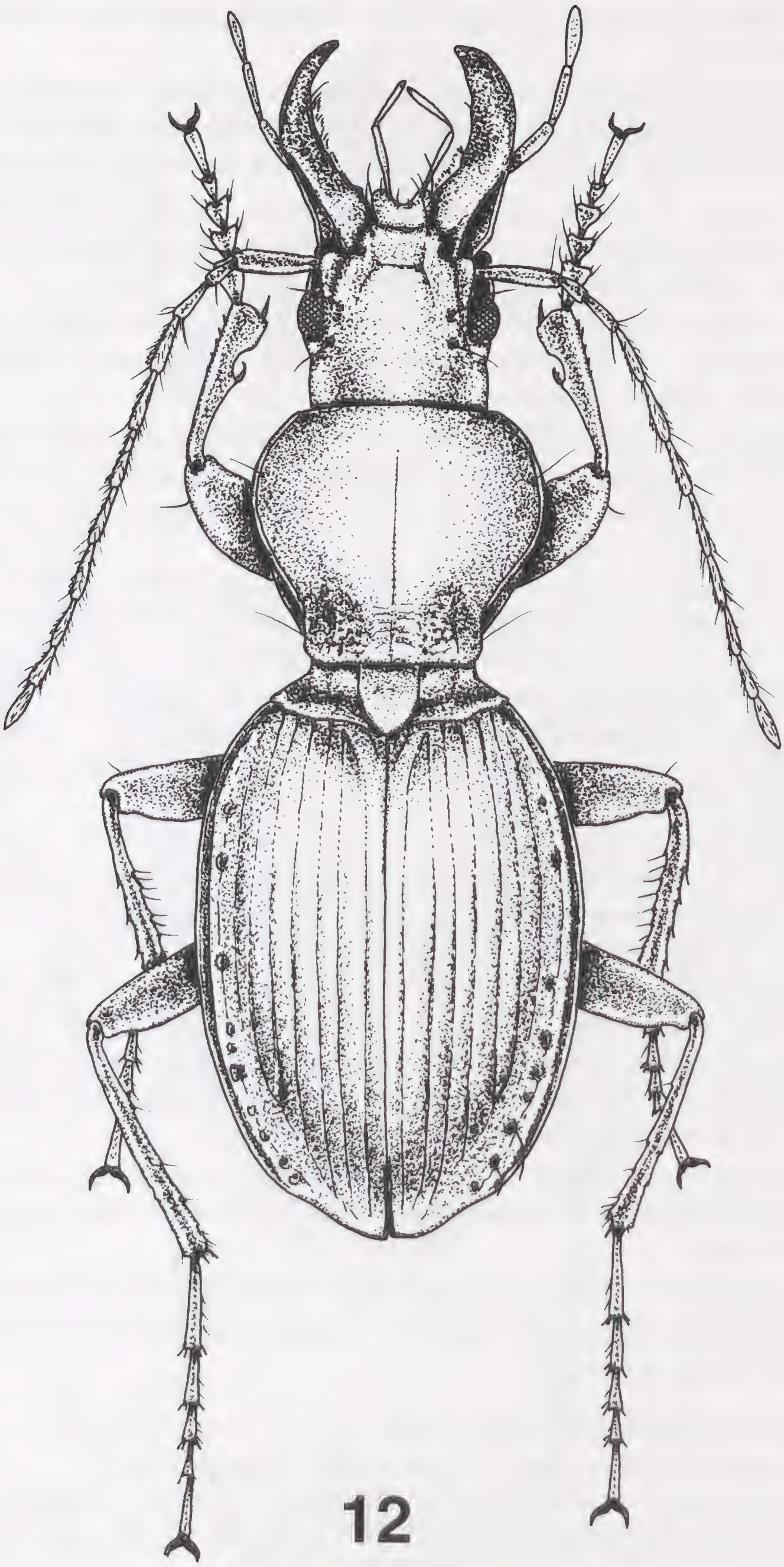


Fig. 12. Habitus of *S. robustus* n. sp., holotypus.

7-11.VII.1994, (NHMW). 2 paratypes ♂♀ from China, Yunnan, Weibaoshan mts, 2800-3000 m., 29-30.VI.1992, (NHMB, CS).

SPECIFIC EPITHET. This species is cordially dedicated to Heinrich Schönmann, curator of Coleoptera at the Naturhistorisches Museum Wien, for constantly receiving me in the most cordial way and for always letting me freely study the rich collections of his Museum.

DIAGNOSIS. A *Stomis* of medium size, completely black, with forebody longer than the elytra, elytra almost parallel-sided, with evident humeral tooth; aedeagus relatively small, with apex simply pointed, without apical disc or tooth.

DESCRIPTION - Habitus as in fig. 13. Total length 10.2-12.1 mm, one of the largest known until now in the genus; body dark brown, appendages dark reddish-brown. Head and pronotum, taken together, slightly longer than elytra (El/Fl = .90).

Head cylindrical, smooth, narrower than pronotum; eyes small, shorter than tempora, which are slightly convex. Collar constriction indistinct. Labrum slightly excised in middle of anterior margin. Mandibles extremely long, right one without notch in terebral margin, anteriad terebral tooth.

Pronotum with dorsal surface relatively convex, as long as wide (Pw/Pl = 1.00); sides markedly sinuate towards base, anteriolateral angles protruded as small spines, posteriolateral angles rounded. Anteriolateral seta posteriad anterior fourth, posteriolateral one in the posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, parallel in the anterior half then divergent posteriorly; entire base punctate. Pro-, meso- and metasternum sparsely punctate. Legs quite long and slender. Hind wings strongly reduced, certainly not functional. El/Pl = 2.05, Ew/Pw = 1.28.

Elytra rather parallel-sided and rather wide (El/Ew = 1.60), with maximum width posteriad middle, humeri wide with large tooth; basal margin almost perpendicular to suture, meeting lateral margin at obtuse angle. Striae finely punctate, distinctly developed, complete. Intervals convex on disc, flat at apex and externally.

Aedeagus (Figs. 9, 10) relatively small, with ostium very long, in lateral view (fig. 9) with apical portion much longer than basal one, markedly depressed, with apex simply pointed, without apical disc or tooth. In dorsal view (fig. 10) with apex asymmetrical, bent toward left, and with small apical thickening. The structure of the aedeagus is similar to that of *S. robustus*, but it is smaller and more markedly depressed.

HABITAT. Collected at altitudes of 2500-3200 m, but the labels do not mention any data about the precise habitat. Most probably, judging from the altitude, it must be either in mixed or in coniferous forest.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Known from two localities in northern Yunnan.

AFFINITIES. This species seems to be related to *S. chinensis* and *S. robustus*. For details, see "Affinities" for *S. chinensis*, above.

5. *Stomis* (*Stomis*) *collucens* (Fairmaire, 1888)

Stobeus collucens Fairmaire, 1888: 11. Type-locality: China, Yunnan.

Material examined: "Yunnan R.P. Delavay": Holotypus ♀ (MHNP); N Yunnan, Heishui vill.: 4 ♂♂♀♀ (CS); N Yunnan, Yulongshan mountains: 6 ♂♂♀♀ (NHMB, CF, CS); from Yunnan, Baishui, 3000 m: 3 ♂♂♀ (CF); N Yunnan, Yiunling mountains: 1 ♂ (CS).

DIAGNOSIS. A *Stomis* of large size 10.3-12.2 mm), black with evident green metallic hues on

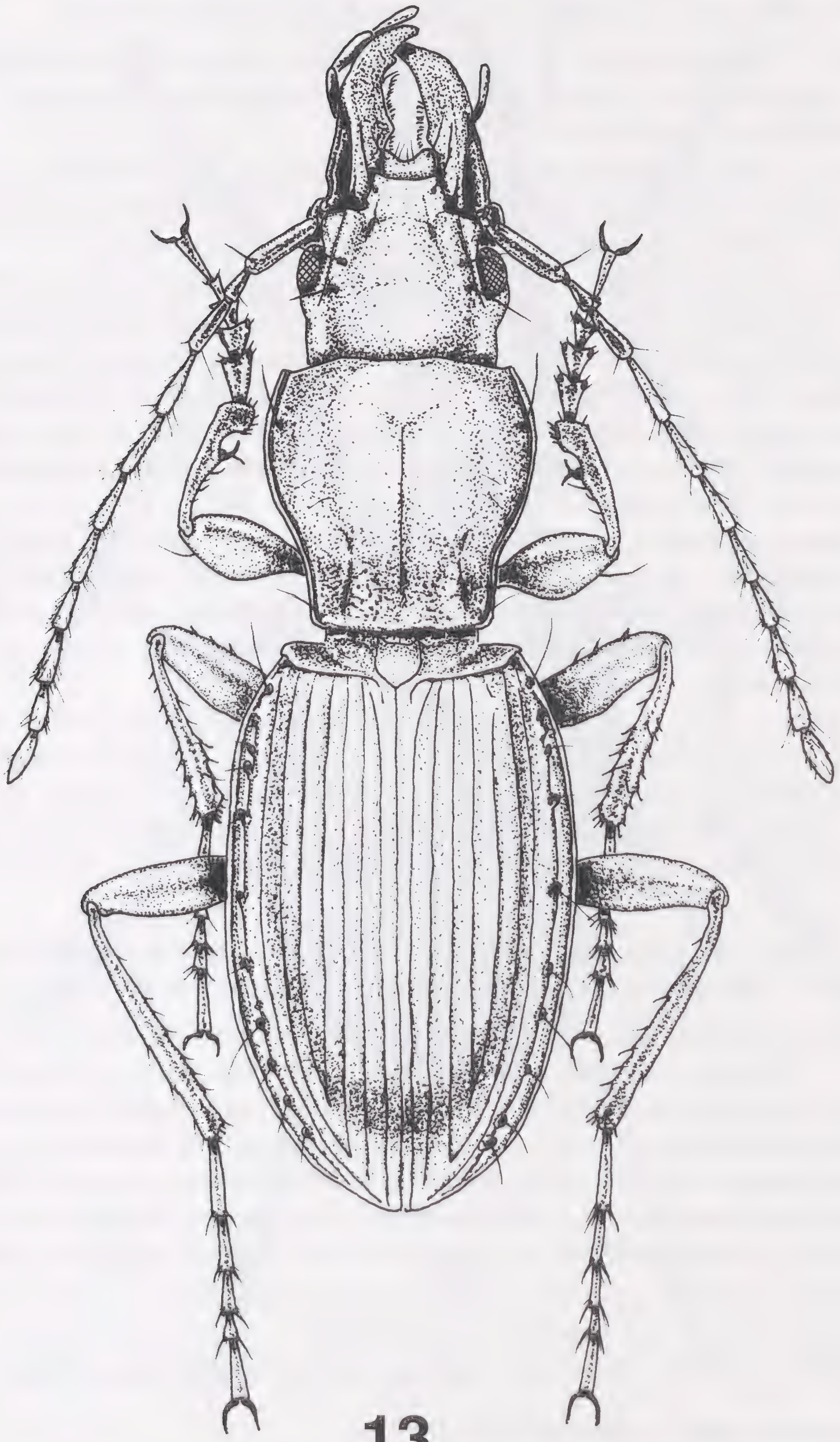


Fig. 13. Habitus of *S. schoenmanni* n. sp., holotypus.

head, pronotum and elytra; posteriolateral angles of pronotum wide and almost rectangular. Median lobe of aedeagus compressed, with apex wide and obliquely truncate.

DESCRIPTION - Habitus as in fig. 14. Total length 10.3-12.2 mm; body black with evident green hue, appendages black, except tarsi and palpi. Head and pronotum, taken together, scarcely shorter than elytra (El/Fl = 1.03).

Head large, smooth, narrower than pronotum; eyes small, shorter than tempora, which are slightly convex. Collar constriction indistinct. Labrum deeply excised in middle of anterior margin. Mandibles long, right one without notch in terebral margin.

Pronotum with dorsal surface relatively flat, slightly transverse (Pw/Pl = 1.16), widest at anterior fourth; sides not sinuate posteriorly, but markedly convex until basal fourth and then almost parallel, anteriolateral angles almost not protruded, posteriolateral angles almost right or slightly obtuse. Anteriolateral seta almost at anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, widened posteriorly, almost impunctate. Pro-, meso- and metasternum sparsely punctate. Legs rather short and stout. Hind wings strongly reduced, certainly not functional. El/Pl = 2.28, Ew/Pw = 1.29.

Elytra short and rather rounded at sides (El/Ew = 1.52) with maximum width almost in the middle, shoulders wide with small tooth; basal margin almost perpendicular to suture, meeting lateral margin at right or obtuse angle. Striae very slightly punctate, complete but gradually more shallow toward apex and externally. Intervals slightly convex on disc, flat at the apex and externally.

Adeagus (fig. 16, 17) very different from that of the other known species, with apex wide and flat in dorsal view, obliquely truncate (fig. 17). I think that the differences are not sufficiently marked to support the generic (or subgeneric) separation of *Stobeus*. Regardless, should this separation be supported by the discovery of new, until now unnoticed characters, the species *politus* would certainly be included in *Stobeus* with *collucens*, but *deuvei* would not.

HABITAT. The only specimen bringing on its label precise data about the altitude of collecting says that it was collected at 3000 m, probably in forest or alpine meadows.

GEOGRAPHICAL DISTRIBUTION. This species is known only from the region of Yunnan. I have seen 11 specimens collected in four different localities in northern Yunnan (two of which I have been unable to find even in the most detailed maps available) and one female specimen from Habashan mountains, of much larger size than all the other known (14.9 mm); since this specimen also shows some differences in external characters, it could either simply represent a different population or a different species. Not knowing the male it is difficult to decide which of the two possibilities is to be preferred and I prefer to leave the question open.

AFFINITIES. The first species of this genus described from China, *S. collucens* is rather isolated both in external and aedeagal characters. Only *S. politus*, recently described, is certainly related to it, while all the other species are more distant phylogenetically.

6. *Stomis* (*Stomis*) *politus* Ledoux & Roux, 1995

Stomis (*Stobeus*) *politus* Ledoux & Roux, 1995: 148. Type-locality: China, Yunnan, Zhongdian.

Material examined: Yunnan, Zhongdian: Holotypus ♂ (CL) and 1 ♀ (CS).

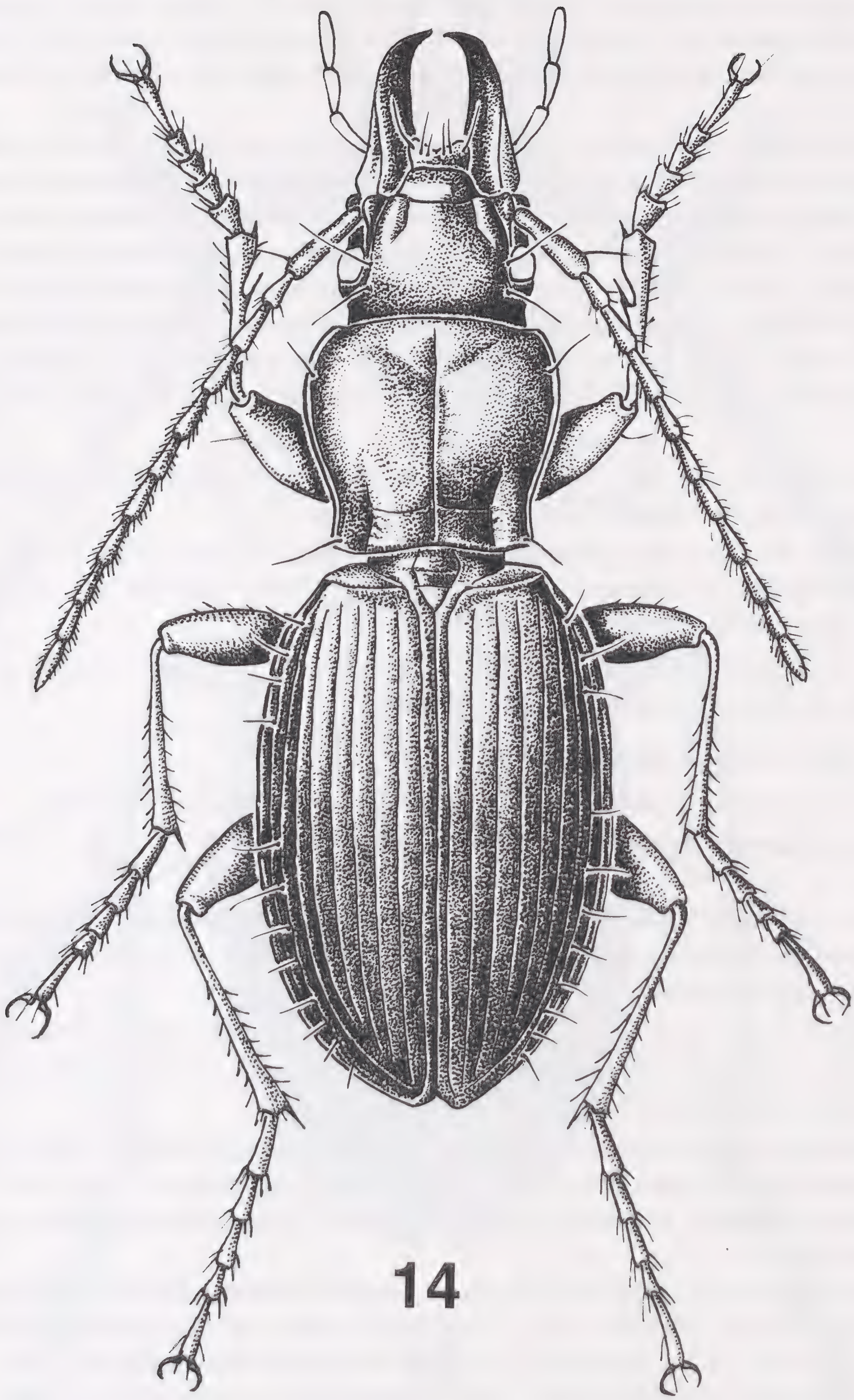


Fig. 14. Habitus of *S. collucens* Fairmaire, from Heishui.

I have examined the male holotype and another topotypical female specimen in my collection, that corresponds well to the type, except that the size is slightly larger. The genitalia of this species are unknown, since the male holotype lacks an aedeagus. I think it is almost certain that, when known, this structure will appear very similar to that of *S. collucens*.

This species is very close to *S. collucens*, so close that it soes not deserve a redescription. Ledoux & Roux (1995) note as differences in comparison with *S. collucens*: pronotum anteriorly wider, anterior depression of pronotum not delimited by a V-shaped sulcus, excision of labrum V-shaped instead of U-shaped, elytra longer and more parallel-sided, elytral striae punctate, interval slightly convex, humeral spine more pronounced, color bronzed instead of green-blue. Beyond the differences mentioned by the authors and reported in the key, I have noticed that the eyes are slightly flatter in *S. politus* than in *S. collucens*.

Morphometric indexes: El/Fl = 1.02, Pw/Pl = 1.16, El/Pl = 2.28, Ew/Pw = 1.30, El/Ew = 1.51.

HABITAT. Neither the holotype nor the second specimen known bring any data allowing to know something on the habitat of this species.

GEOGRAPHICAL DISTRIBUTION. Known only from northern Yunnan, in the vicinity of the village of Zhongdian. *S. collucens* lives at only 100 km away from this area, but the two species are separated by the Yangtze-Kiang river.

AFFINITIES. Extremely close to *S. collucens* in all characters; it is certain that the two form a monophyletic group of species recently separated.

7. *Stomis* (*Stomis*) *deuvei* Marcilhac, 1993

Stomis (*Stobeus*) *deuvei* Marcilhac, 1993: 148. Type-locality: China, Gansu, Xiahe.

Material examined: Gansu, Xiahe: 2 ♂♂; Gansu, pass ca. 62 km W Linxia (Da-Li-Jia-Shan): 2 ♂♂.

DIAGNOSIS. A *Stomis* of relatively small size (7.1-8.1 mm), with green metallic hue, similar to *P. facchinii*, herewith described, but different in the absence of a notch in the terebral margin of the right mandible.

DESCRIPTION - Habitus as in fig. 15. Total length 7.1-8.1 mm; body dark brown with evident green metallic hue, appendages dark reddish-brown. Head and pronotum, taken together, scarcely shorter than elytra (El/Fl = 1.07).

Head large, smooth, narrower than pronotum; eyes small, almost as long as slightly convex tempora. Collar constriction slight. Antennae with antennomere 3 glabrous. Labrum deeply excised in middle of anterior margin. Mandibles long, right one without notch in terebral margin.

Pronotum with dorsal surface quite convex, slightly transverse (Pw/Pl = 1.05); sides not sinuate posteriorly, but markedly convex until basal fourth and then almost parallel; anteriolateral angles almost not protruded, posteriolateral angles right or slightly obtuse. Anteriolateral seta almost at anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, wide, deep and sparsely punctate, like all the base. Pro-, meso- and metasternum sparsely punctate. Legs rather short but slender. Hind wings strongly reduced, certainly not functional. El/Pl = 2.32, Ew/Pw = 1.36.

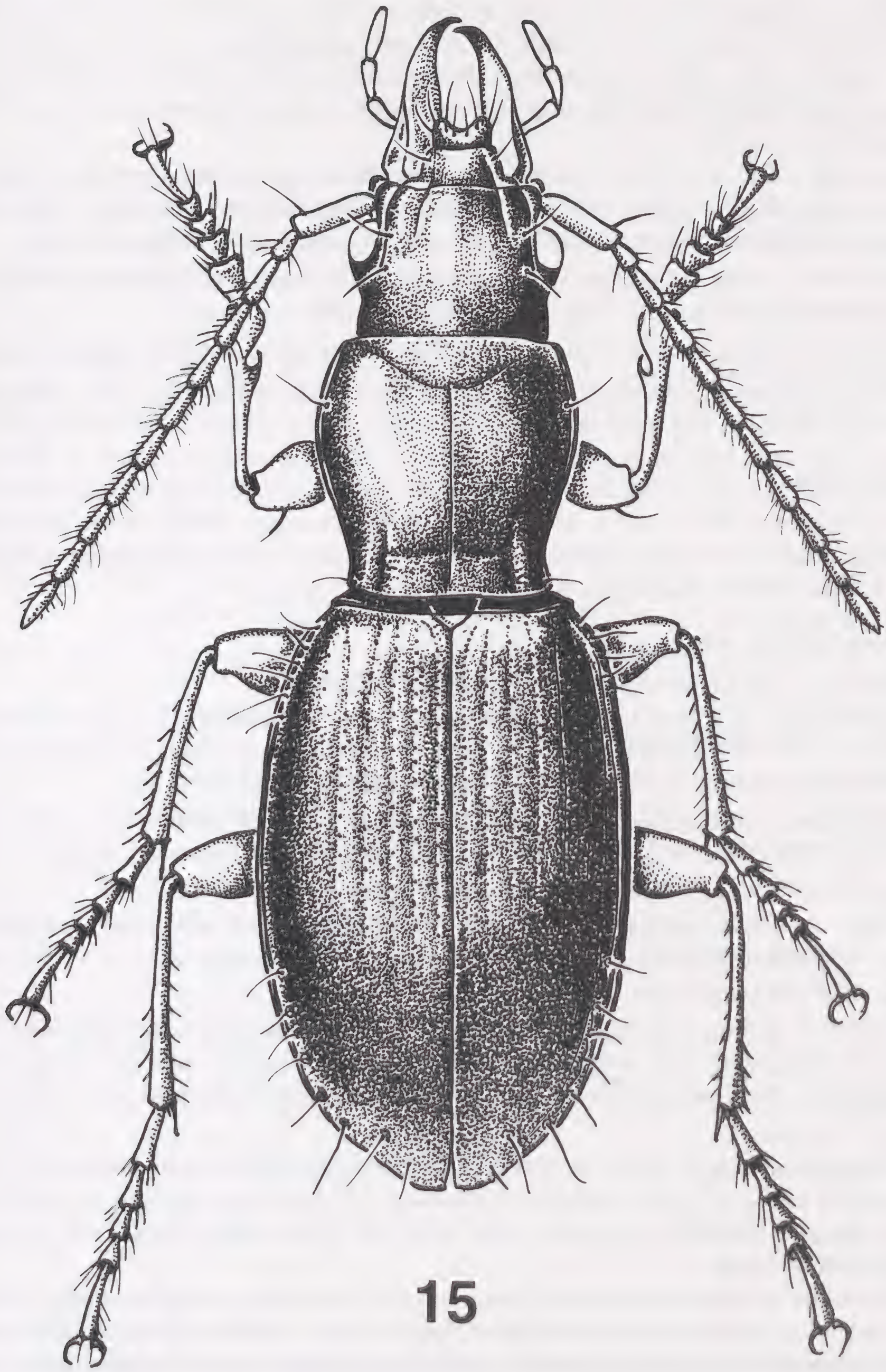


Fig. 15. Habitus of *S. deuvei* Marcilhac, from Xiahe.

Elytra elongate (El/Ew = 1.62) with maximum width posteriad or at middle, humeri rather narrow with very small tooth; basal margin almost perpendicular to suture, meeting the lateral margin with a right or obtuse angle. Striae finely punctate, obliterated apically and gradually more shallow externally, only stria 1 extended to apex. Intervals convex on disc, flat at apex and externally.,

Aedeagus (figs. 18, 19) with apical portion much longer than basal portion, in lateral view (fig. 18) with apex almost rectilinear and progressively thinner. In dorsal view (fig. 19) with apical lamella asymmetrical and almost triangular, with a small tooth on the left.

HABITAT. This species has been collected on the Da-Li-Jia-Shan at an altitude of 3600 m; I ignore the altitude and habitat of the specimens from Xiahe.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Known only from two localities in southern Gansu.

AFFINITIES. Although in the original description this species is included in the subgenus *Stobeus*, my opinion is that it has very little in common with *S. collucens*, for which *Stobeus* had been described. Specimens of *S. deuvei* are very similar in external features to those of *S. farkaci* and *S. facchinii*.. Also the aedeagal shape is quite primitive and is only superficially similar to that of *S. farkaci* and *S. facchinii*. Based on a thorough analysis of the important characters, I conclude that the external similarity is probably a symplesiomorphy, while *S. deuvei* is more closely related to *S. brivioi*.

8. **Stomis (Stomis) brivioi** n. sp.

TYPE-LOCALITY: China, Gansu, Win Shan range, 70 km NE Wudu.

TYPE-SERIES. Holotypus ♂ from China, Gansu, Win Shan range, 70 km NE Wudu, 1.VI.1997 (PIME); 1 paratype ♀, same data as holotypus (CS); 1 paratype ♂ from: China, Gansu, 70 km NW Wudu, 2.VI.1997 (CF); 1 paratype ♀ from: China, S Gansu, Dengkagola, 5-9.VI.1996 (CS).

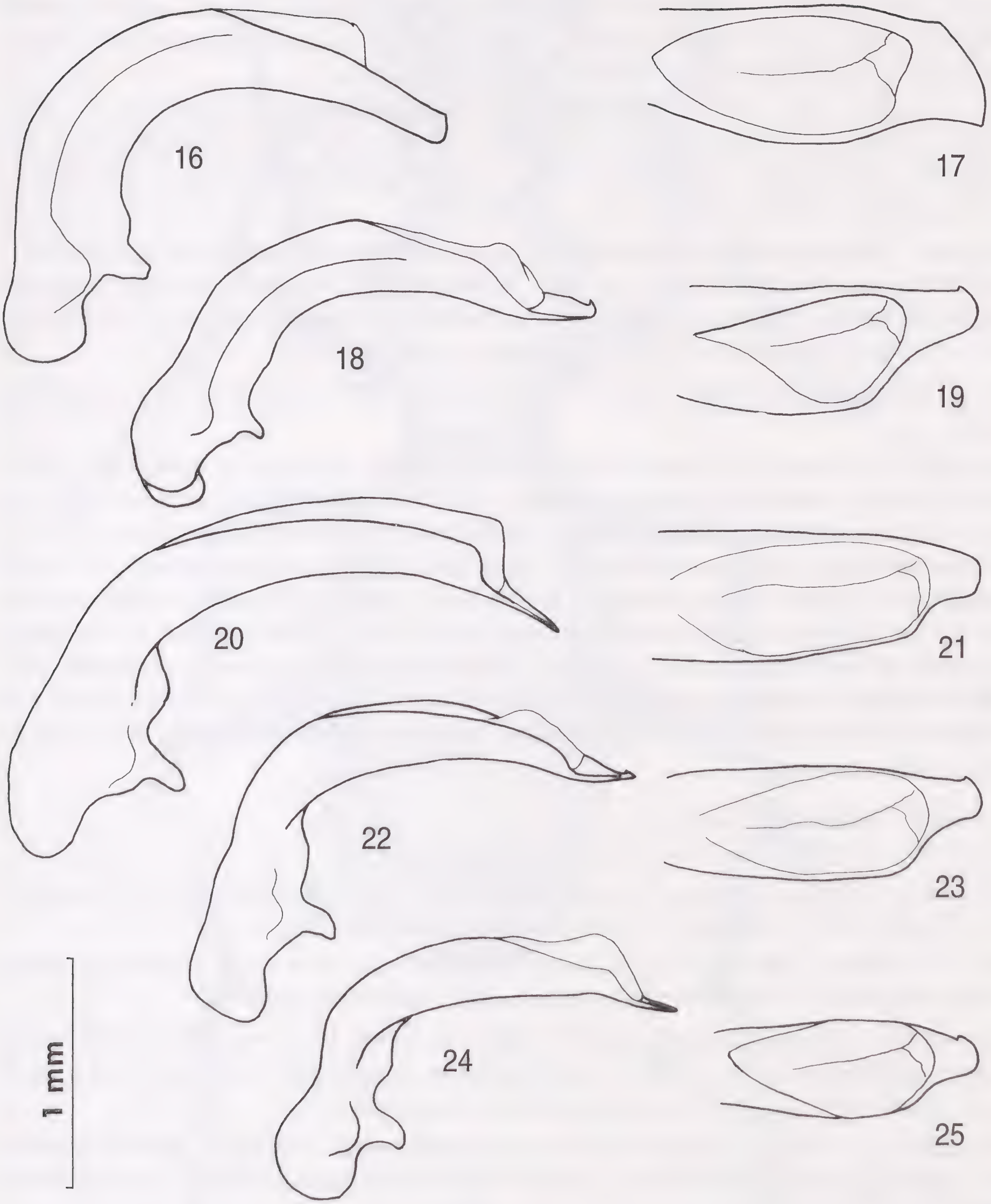
SPECIFIC EPITHET. This species is cordially dedicated to my friend Carlo Brivio, founder of the P.I.M.E. Entomological Museum, who has loaned me the two specimens of this species in his possession, and for helping me in my previous taxonomic work.

DIAGNOSIS. A *Stomis* of large size, similar to *P. titanus* in general body shape, but immediately recognizable from that species by its right mandible without notch in the terebral margin and by its hind angles of pronotum moved forward.

DESCRIPTION - Habitus as in fig. 26. Total length 11.9-12.4 mm, one of the largest known until now in the genus; body dark brown with slight greenish metallic hue, appendages dark reddish-brown. Head and pronotum, taken together, scarcely shorter than elytra (El/Fl = 1.01).

Head large, smooth, narrower than pronotum; eyes extremely small, shorter than slightly convex tempora. Collar constriction indistinct. Labrum deeply excised in middle of anterior margin. Mandibles extremely long, right one with terebral margin not notched anteriad terebral tooth.

Pronotum with dorsal surface relatively convex, very scarcely longer than wide (Pw/Pl = .98); sides very slightly sinuate immediately anteriad base, anteriolateral angles almost not protruded, posteriolateral angles rounded. Anteriolateral seta almost at anterior fourth, posteriolateral one slightly anteriad posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, not very deep, with few punctures. Prosternum smooth, meso- and



Figs. 16-25. Aedeagus in lateral and dorsal view of: 16-17, *S. collucens* Fairmaire, from Heishui; 18-19, *S. deuvei* Marcilhac, from Xiahe; 20-21, *S. brivioi* n. sp., holotypus; 22-23, *S. farkaci* n. sp., holotypus; 24-25, *S. facchinii* n. sp., holotypus,

metasternum sparsely punctate. Legs extremely long and slender. Hind wings strongly reduced, certainly not functional. El/Pl = 2.35, Ew/Pw = 1.43.

Elytra elongate (El/Ew = 1.67) with maximum width posteriad middle, humeri very narrow with small but evident tooth; basal margin almost parallel to suture, meeting lateral margin at obtuse angle. Striae evidently punctate, almost complete, slightly less deeply impressed apicad and externally. Intervals all slightly convex.

Aedeagus (Figs. 20, 21) rather large, thin and regularly curved from base to apex. Apical portion longer than basal portion, in lateral view (fig. 20) with apex almost rectilinear and progressively thinner. In dorsal view (fig. 21) with apical lamella long, narrow, slightly asymmetrical and without apical tooth.

HABITAT. The labels under the specimens do not mention any information about the habitat, but judging from the maps of the area it can be inferred that this species has been collected at altitudes between 2500 and 3000 m. Judging from the most similar species, it is likely that it lives in mixed or coniferous forest or in alpine meadows.

GEOGRAPHICAL DISTRIBUTION. (Fig. 34) This species is known only from two localities in Gansu.

AFFINITIES. This species is similar in habitus to *S. titanus*, herewith described, but differs from it in many characters, the most important of which is lack of the mandibular notch. Also the aedeagus shows an important difference, that is the lack of apical lateral tooth in *S. brivioi*. On the other hand, from Gansu is known *S. deuvei*, another species without mandibular notch; it is possible that the relation between *S. brivioi* and *S. deuvei* is the same existing between *S. gigas* and *S. farkaci*, that is two species from the same area, probably related to each other, one of which is of large size, with long and slender appendages and the other of smaller size, with short and stout appendages. The speciation may have been sympatric in both groups, for adaptation to very different ecological niches, but many more data would be necessary in order to demonstrate this.

9. **Stomis (Stomis) farkaci** n. sp.

TYPE-LOCALITY: China, Yunnan, Hengduan mts., part Baima.

TYPE-SERIES. Holotypus ♂: China, Yunnan, Hengduan mts., part Baima, 28 20 N 99 00 E, 4600 m, 26-28.VI.1996, (CFa). 1 paratype ♂ with the same data as holotypus (CS).

SPECIFIC EPITHET. This species is cordially dedicated to my dear friend Jan Farkač, of the Charles University of Praha, for his continuing help and encouragement.

DIAGNOSIS. A *Stomis* of relatively small size (10.1-10.4 mm), close to *P. facchinii*, described below, but different in the absence of pubescence of antennomere 3 and the elytra longer, more parallel-sided and with humeral tooth more prominent.

DESCRIPTION - Total length 10.1-10.4 mm; body dark brown with slight greenish metallic hue, appendages dark reddish-brown. Head and pronotum, taken together, scarcely shorter than elytra (El/Fl = 1.05).

Head large, smooth, narrower than pronotum; eyes small, shorter than slightly convex tempora. Collar constriction slight. Antennae pubescent from apical half of antennomere 3. Labrum deeply excised in middle of anterior margin. Mandibles long, right one with deep notch in terebral margin anteriad terebral tooth.

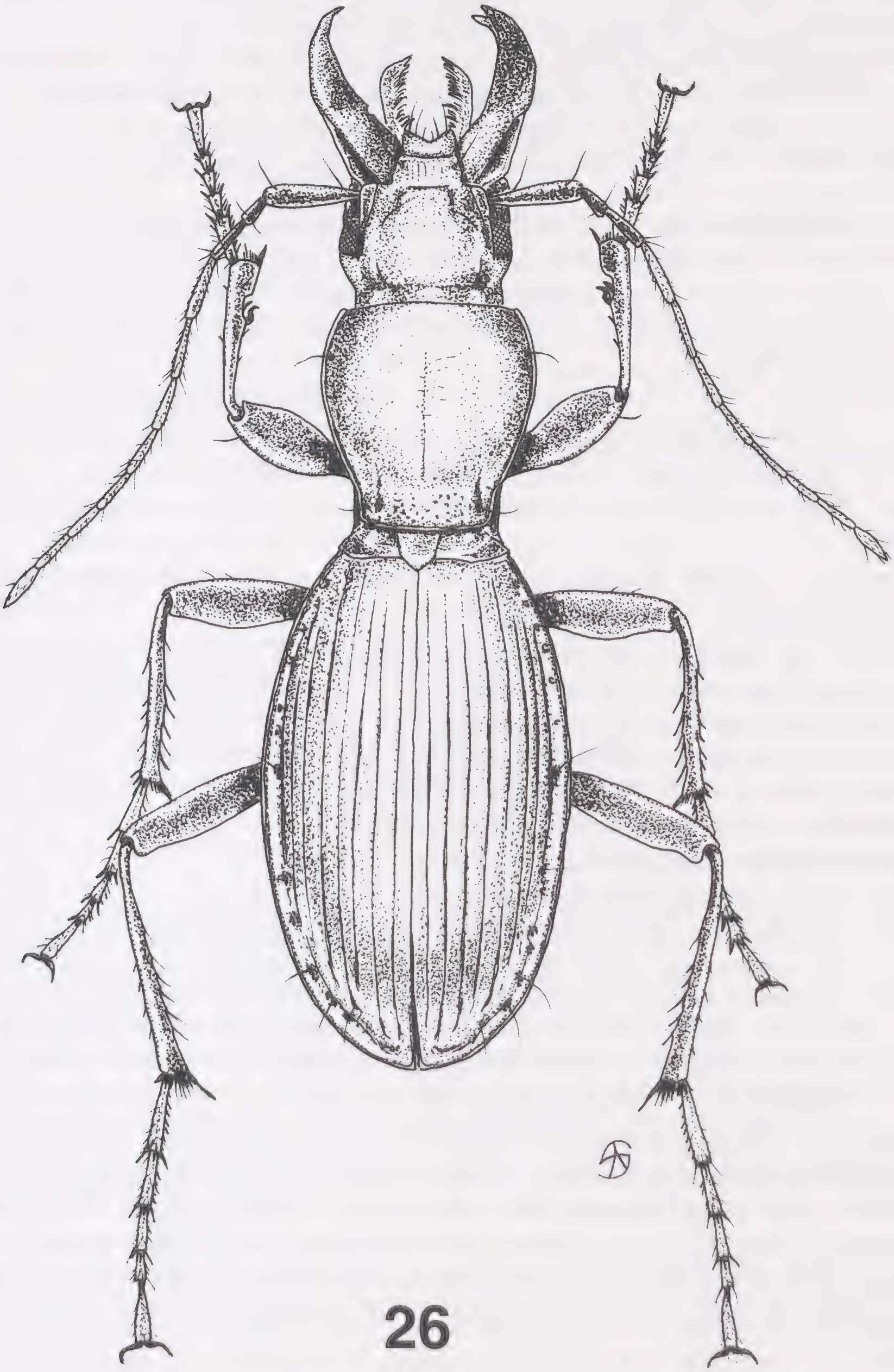


Fig. 26. Habitus of *S. brivioi* n. sp., paratypus, from Dengkagola.

Pronotum with dorsal surface quite convex, slightly transverse (Pw/Pl = 1.07); sides not sinuate toward base, but markedly convex to basal fourth and then almost parallel; anteriolateral angles only slightly protruded, posteriolateral angles right or slightly acute. Anteriolateral seta almost at anterior fourth, posteriolateral one in the posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, deep and sparsely punctate. Pro-, meso- and metasternum sparsely punctate. Legs rather short but slender. Hind wings strongly reduced, certainly not functional. El/Pl = 2.48, Ew/Pw = 1.42.

Elytra elongate (El/Ew = 1.62) with maximum width usually posteriad middle, shoulders very narrow with large tooth; basal margin almost perpendicular to suture, meeting lateral margin at right or obtuse angle. Striae finely punctate, obliterated apically and gradually more shallow externally; only stria 1 extended to apex. Intervals convex on disc, flat at apex and externally.

Aedeagus (Figs. 22, 23) with apical portion much longer than basal portion, in lateral view (fig. 22) with apex almost rectilinear and progressively thinner. In dorsal view (fig. 23) with apical lamella asymmetrical and almost triangular, with small tooth on left.

HABITAT. This species has been collected at an altitude of 4600 m, certainly in alpine meadows.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Known from a single locality in northern Yunnan, in an area not explored before entomologically.

AFFINITIES. Very similar in size and general appearance to *S. facchinii*, although with slighter metallic reflections. The right mandible has an evident notch in the terebral margin, as in *S. facchinii*, *S. titanus* and *S. gigas*, all described here. This character delimits a small species group, but I ignore whether it can be regarded as a true synapomorphy or if it can be due to convergence, even though I am decidedly inclined towards thinking that it is a true synapomorphy.

10. **Stomis (Stomis) facchinii** n. sp.

TYPE-LOCALITY: China, western Sichuan, Mugezuo Lake.

TYPE-SERIES. Holotypus ♂: China, western Sichuan, Mugezuo Lake, 4000 m, 16.VII.1992, (CS). 1 paratype ♂ with same data as holotype (CP); 2 paratypes ♂♂ from Chine, (Sichuan) Mugecuo, VI.1993 (MHNP); 3 paratypes ♂♂♀ from China, W Sichuan, Daxue Shan 5 km W Taheto-La pass (W Kangding), 3900-4000 m, 30.04 N ♀ 101.47 E, 26.V.1997 (CW); 1 paratype ♀ from W Sichuan, Mts. ca. 20 km NNW Sabdé, 2000-3500 m., 18-20.VI.1994 (CF); 2 paratypes ♂♀ from SW Sichuan, road Sabde-Jiulong, pass 40 km N Jiulong, *Picea* forest, 3000 m, 25.VI.1994 (CF, CS); 1 paratype ♂ from W Sichuan, road Qianning-Dawu, pass 35 km NNW Qianning, 3900 m, 1.VIII.1994 (CS); 4 paratypes ♂♂ from W Sichuan, road Kangding-Xinduqiao, pass 16 km W Kangding m 4200 (CF, CS); 1 paratype ♀ from W Sichuan, 30 km W Kangding, 5000 m, 26.VII.1994 (CS); 1 paratype ♂ from Sichuan, Kangding distr., SE slopes of M. Haisishan (Yarala), 4100-4700 m, 21.VII.1996 (CZ); 1 paratype ♀ from Sichuan, Kangding distr., Source of Yala, n. vill. Zhonggu, 4000-4500 m, 20.VII.1996 (CZ); 1 paratype ♀ from Sichuan, Kangding distr., Valley of Yala, n. vill. Zhonggu, 3400-3650 m, 18.VII.1996 (CZ); 1 paratype ♀ from Sichuan, Kangding distr., Lake Xierenhai (Mugeicuo) vic., 3900 m, 23-24.VII.1996 (CZ); 14 paratypes ♂♂♀♀ from China, NW Sichuan, pass 20 km S Quagca, 4100 m, 17-18.VII.1992 (CF, CS); 3 paratypes ♂♀♀ from NW Sichuan, road Zogqen-Quagca, 60 km NW Zogqen, 4000 m, 19.VI.1995 (CF, CP, CS); 4 paratypes ♂♂♀ from NW Sichuan, Maniganggo, 4000 m, 18.VI.1995 (CF, CP, CS); 6 paratypes ♂♂♀♀ from NW Sichuan, road Garzè-Barong, pass 25 km S Garzè, 3500-4500 m, 8-10.VII.1995 (CF, CP, CS); 3 paratypes ♂♂♀ from NW Sichuan, road Sertar-Darcang, 20 km SSE

Darcang, 4000 m, 15.VII.1995 (CF, CP, CS); 2 paratypes ♂♀ from NW Sichuan, road Sertar-Darcang, 20 km W Sertar, 15.VII.1995 (CF, CS); 2 paratypes ♂♀ from NW Sichuan, Ganzi (Garze), vic. Sulunzuguayshan Mt. range near M. Zhuotala, 4700-4900 m, 27.VII.1996 (CZ); 1 paratype ♀ from Sichuan, n. Kangding, See Mu-ge-cuo, 3500-3900 m, 22.VII.1994 (CH) .

SPECIFIC EPITHET. I am pleased to dedicate this species to my dear friend Sergio Facchini from Piacenza, excellent collector of Carabidae.

DIAGNOSIS. A *Stomis* of relatively small size, similar to *P. farkaci*, herewith described, but different in the presence of almost constant pubescence on antennomere 3, the elytra shorter, more rounded at sides and with smaller humeral tooth.

DESCRIPTION - Habitus as in fig. 27. Total length 7.2-9.8 mm; body dark brown with slight greenish metallic hue, appendages dark reddish-brown. Head and pronotum, taken together, scarcely shorter than elytra (El/Fl = 1.02).

Head large, smooth, narrower than pronotum; eyes small, shorter than slightly convex tempora. Collar constriction slight. Antennae with antennomere 3 pubescent or glabrous. (For details, see "Geographical variation", below). Labrum deeply excised in middle of anterior margin. Mandibles long, right one with deep notch in terebral margin, anteriad terebral tooth.

Pronotum with dorsal surface quite convex, slightly transverse (Pw/Pl = 1.10); sides not sinuate posteriorly, but markedly convex until basal fourth and then almost parallel; anteriolateral angles almost not protruded, posteriolateral angles right or slightly acute. Anteriolateral seta almost at anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, deep and sparsely punctate. Pro-, meso- and metasternum sparsely punctate. Legs rather short but slender. Hind wings strongly reduced, certainly not functional. El/Pl = 2.32, Ew/Pw = 1.32.

Elytra elongate (El/Ew = 1.60) with maximum width posteriad or at middle, humeri very narrow with large tooth; basal margin almost perpendicular to suture, meeting the lateral margin with a right or obtuse angle. Striae finely punctate, obliterated apically and gradually more shallow externally, only stria 1 extended to apex. Intervals convex on disc, flat at apex and externally.

Aedeagus (figs. 24, 25) with apical portion much longer than basal portion, in lateral view (fig. 24) with apex almost rectilinear and progressively thinner. In dorsal view (fig. 25) with apical lamella asymmetrical and almost triangular, with small tooth on left. The aedeagus is very similar to that of *S. farkaci*, but smaller and with shorter apical portion.

HABITAT. This species has been collected at altitudes between 2000 and 4900 m in a variety of habitats, including *Picea* forest and alpine meadows. It is the Chinese species known upon the largest number of specimens and it must have a rather wide ecological range.

GEOGRAPHICAL VARIATION. Members of populations from northern Sichuan are on average larger and more slender than those from west Sichuan. Also, antennomere 4 is constantly pubescent in the northern populations, but glabrous in some individuals of the western populations.

GEOGRAPHICAL DISTRIBUTION. (Fig. 34). Known from many localities in west and north Sichuan, in the area extending from Kangding to the border of Qinghai.

AFFINITIES. Very closely related to *S. farkaci*, described above. The right mandible has an

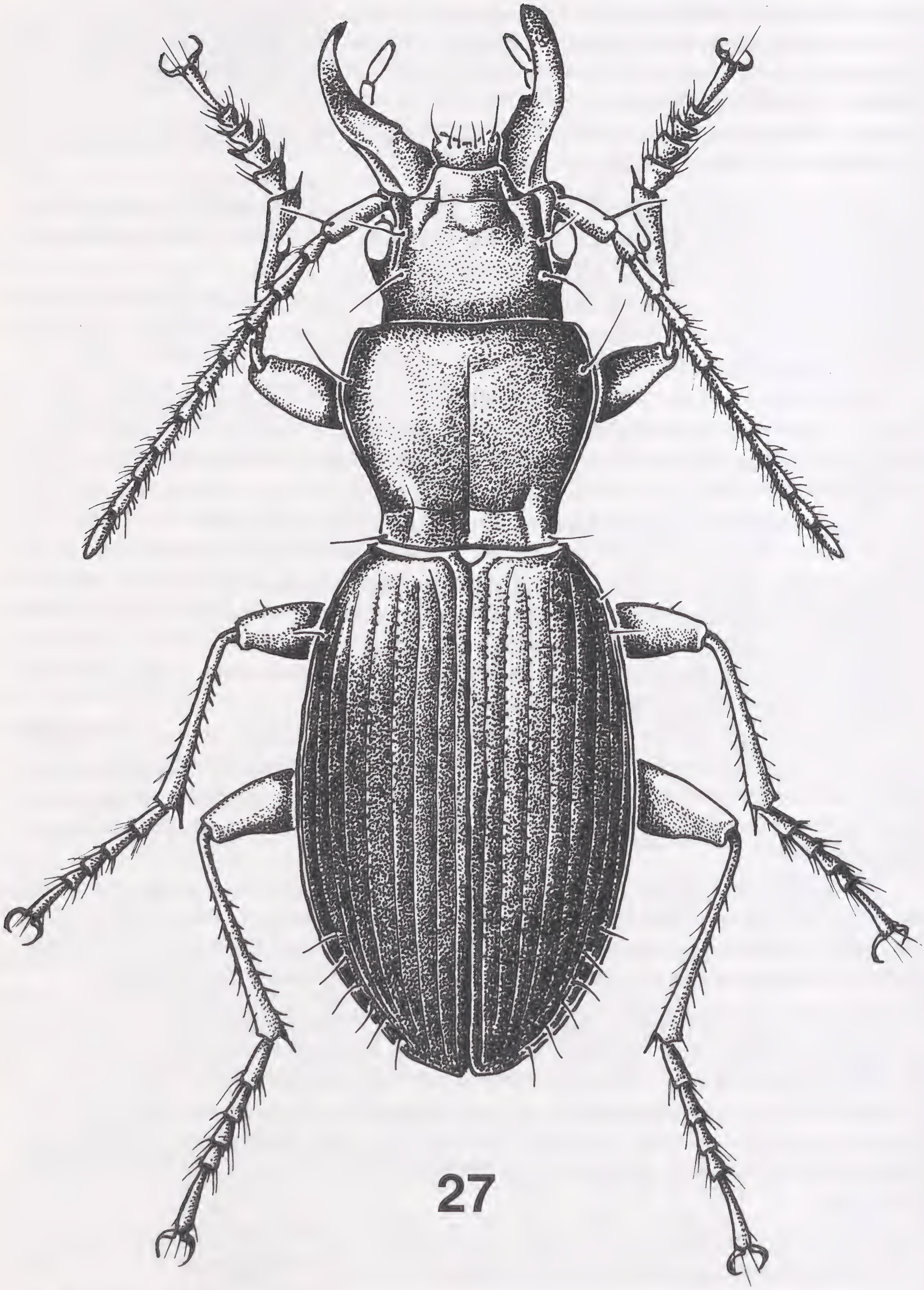


Fig. 27. Habitus of *S. facchinii* n. sp. paratypus, from Gougga Shan.

evident notch in the terebral margin, which seems to point towards a certain relationship also with *S. titanus,* herewith described.

11. **Stomis (Stomis) titanus** n. sp.

TYPE-LOCALITY: China, NW Yunnan/SW Sichuan, road Xiangcheng-Zhongdian, pass 35 km S Xiangcheng, 15 km N Wengshui.

TYPE-SERIES. Holotypus ♂: China, NW Yunnan/SW Sichuan, road Xiangcheng-Zhongdian, pass 35 km S Xiangcheng, 15 km N Wengshui, 3500 m, 10-13.VII.1994 (CS). 1 paratype ♀, same data as holotype (CF).

SPECIFIC EPITHET. The name of this species alludes to the very large size, one of the largest known until now in the genus.

DIAGNOSIS. A *Stomis* of very large size (12.1-13.4 mm), related to *P. facchinii* but differing in the much larger size, flat body, and very long and slender appendages, particularly the mandibles.

DESCRIPTION - Habitus as in fig. 28. Total length 12.1-13.4 mm, one of the largest known until now in the genus; body dark brown with slight greenish metallic hue, appendages dark reddish-brown. Head and pronotum, taken together, scarcely shorter than elytra (El/Fl = 1.06).

Head large, smooth, narrower than pronotum; eyes extremely small, shorter than tempora, which are slightly convex. Collar constriction indistinct. Labrum deeply excised in middle of anterior margin. Mandibles extremely long, right one with deep notch in terebral margin anteriad terebral tooth.

Pronotum relatively flat, slightly transverse (Pw/Pl = 1.07); sides markedly sinuate toward base, anteriolateral angles almost not protruded, posteriolateral angles right or slightly acute. Anteriolateral seta almost at anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, narrow, parallel in anterior half then divergent posteriorly, impunctate. Prosternum smooth, meso- and metasternum sparsely punctate. Legs extremely long and slender. Hind wings strongly reduced, certainly not functional. El/Pl = 2.54, Ew/Pw = 1.47.

Elytra elongate (El/Ew = 1.61) with maximum width posteriad middle, shoulders very narrow with large tooth; basal margin markedly oblique, meeting suture at obtuse angle, and meeting lateral margin at right or obtuse angle. Striae very finely punctate, slightly more shallow externally and obliterated toward apex; only stria 1 extended to apex. Intervals flat.

Aedeagus (figs. 29, 30) very large, thin and regularly curved from base to apex. Apical portion longer than basal portion, in lateral view (fig. 29) with apex almost rectilinear and progressively thinner. In dorsal view (fig. 30) with apical lamella long, narrow, slightly asymmetrical and with small tooth on left.

HABITAT. The two known specimens of this species were found at an altitude of 3500 m in alpine region and *Picea* forest.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Known from a single locality in southern Sichuan.

AFFINITIES. This species is almost certainly related to *S. gigas*, described below. With this species, in fact, it shares most of its characters, including the notched right mandible.

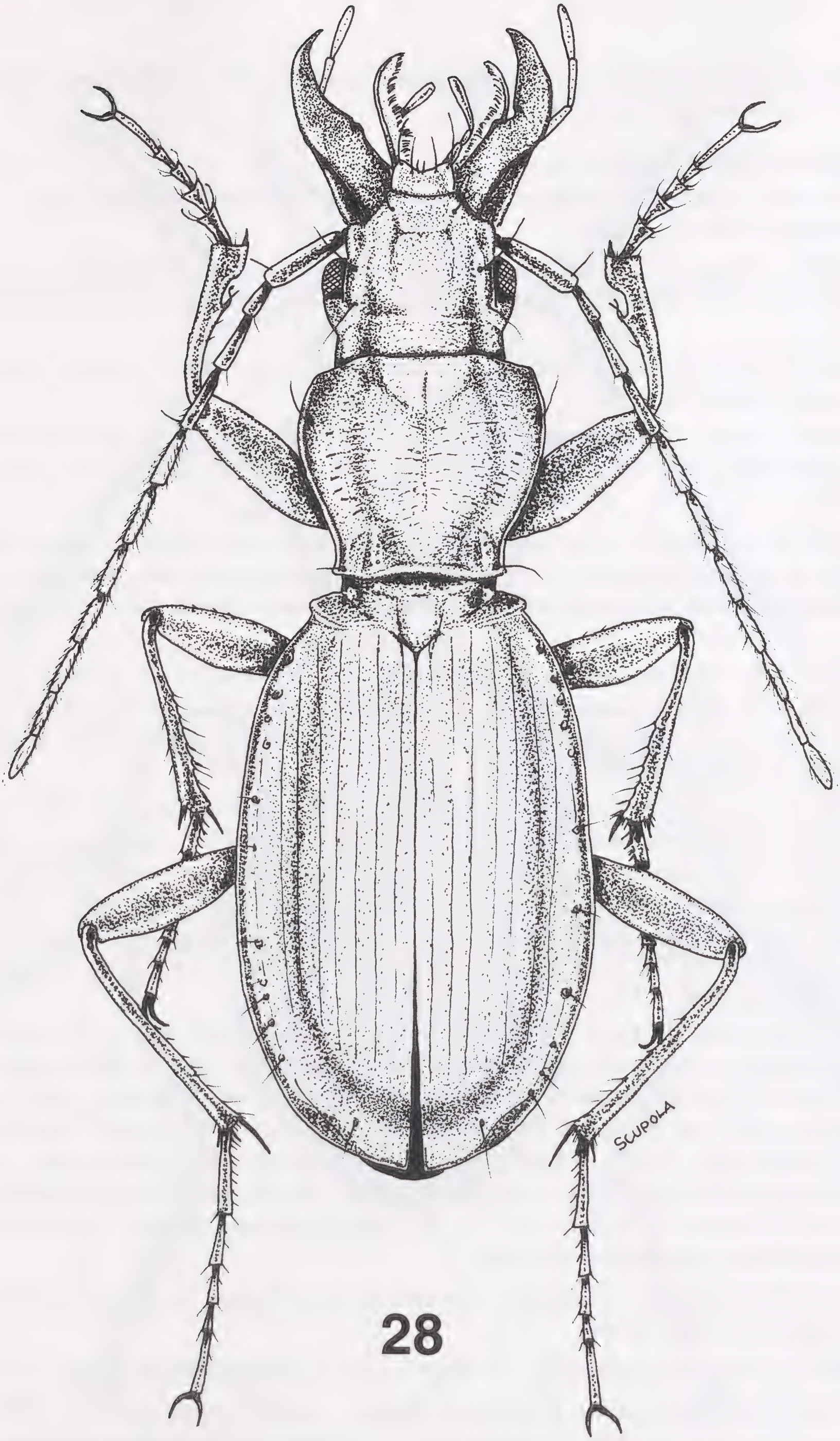


Fig. 28. Habitus of *S. titanus* n.sp., holotypus.

12. **Stomis (Stomis) gigas** n. sp.

TYPE-LOCALITY: China, N Yunnan, Haba Shan near Zhongdian.

TYPE-SERIES. Holotypus ♂: China, N Yunnan, Haba Shan near Zhongdian, 3800 m, 23-26.VI.1996, (CFa); 2 paratypes ♂♂, same data as holotypus (CFa, CS); 1 paratype ♀, China, Yunnan, Habashan mts E slope, 3800-4600 m., 15.VII.1992 (NHMB).

SPECIFIC EPITHET. The name of this species alludes to the very large size, the largest known until now in the genus.

DIAGNOSIS. A *Stomis* of very large size, similar to *P. titanus* but differing in the more convex body, greenish hues more marked, elytra more constricted at base, shorter and more robust legs and aedeagal shape.

DESCRIPTION - Habitus as in fig. 33. Total length 13.2-14.1 mm, one of the largest known until now in the genus; body black with evident greenish hue, appendages black, except tarsi and palpi. Head and pronotum, taken together, scarcely shorter than elytra (El/Fl = 1.04).

Head large, smooth, narrower than pronotum; eyes small, shorter than tempora, which are slightly convex. Collar constriction indistinct. Labrum deeply excised in middle of anterior margin. Mandibles extremely long, right one with deep notch in terebral margin anteriad terebral tooth.

Pronotum with dorsal surface relatively flat, slightly transverse (Pw/Pl = 1.10), widest just behind anterior margin; sides slightly and shortly sinuate towards base, anteriolateral angles almost not protruded, posteriolateral angles almost right. Anteriolateral seta almost at anterior fourth, posteriolateral one in posteriolateral angle. Lateral gutter narrow; posteriolateral fovea single, widened posteriorly, extensively punctate. Pro-, meso- and metasternum sparsely punctate. Legs long and slender. Hind wings strongly reduced, certainly not functional. El/Pl = 2.43, Ew/Pw = 1.34.

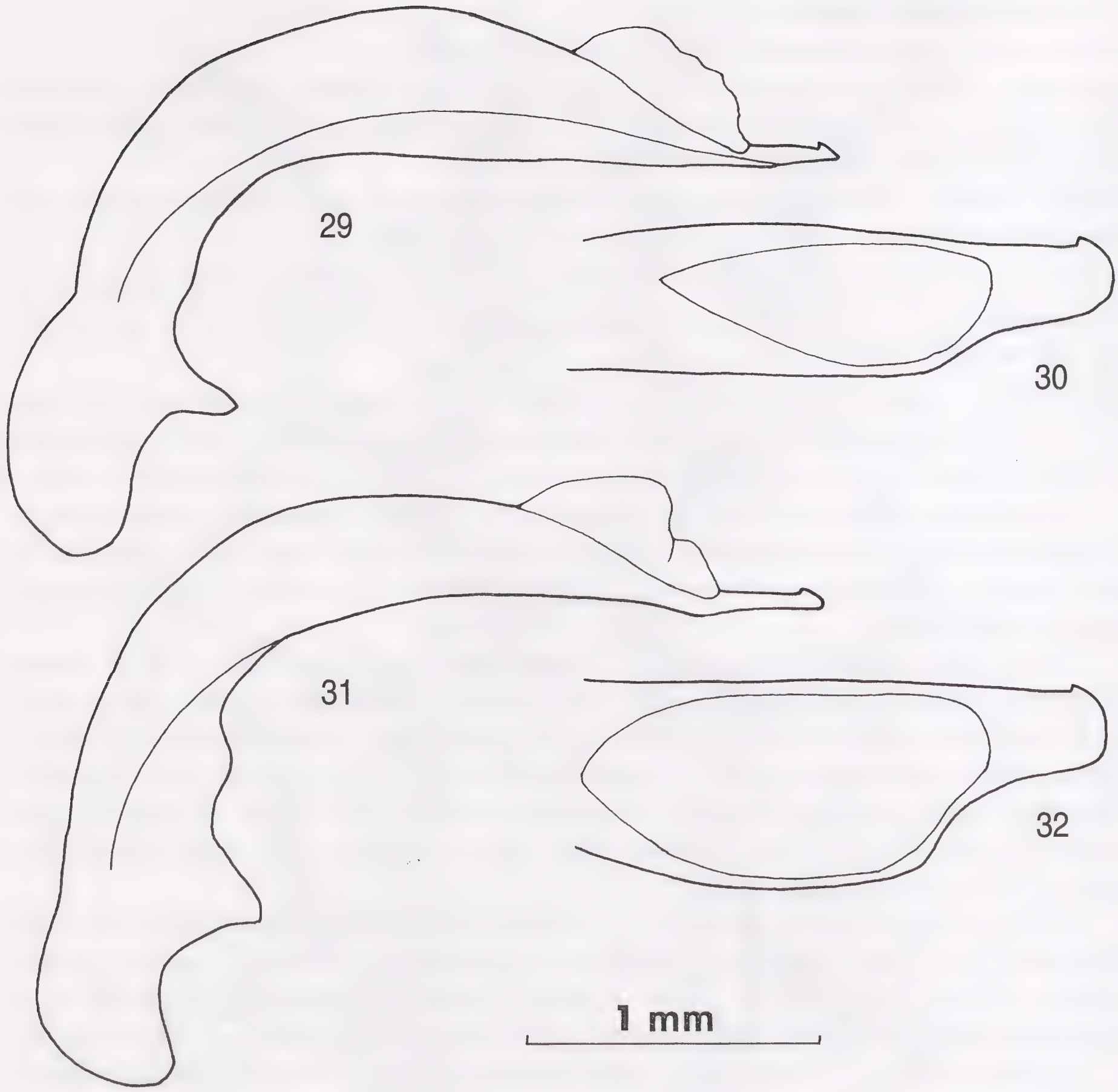
Elytra elongate (El/Ew = 1.64) with maximum width almost in the middle, shoulders quite narrow with large tooth; basal margin almost perpendicular to suture, meeting lateral margin at right or obtuse angle. Striae distinctly punctate, complete but gradually more shallow toward apex and externally. Intervals convex on disc, flat at the apex and externally.

Aedeagus (figs. 31, 32) very large, thin and regularly curved from base to apex. Apical portion longer than basal portion, in lateral view (fig. 31) with apex almost rectilinear and progressively thinner. In dorsal view (fig. 32) with apical lamella long, narrow, slightly asymmetrical and with small tooth on left.

HABITAT. The few known specimens of this species have been collected at altitudes of 3800-4600 m, and they are likely to live mainly in alpine meadows.

GEOGRAPHICAL DISTRIBUTION (Fig. 34). Known from a single locality in Northern Yunnan, where it has been collected in few specimens in two different years.

AFFINITIES. If the character of the notch of the right mandible was demonstrated to be a synapomorphy, it would indicate that its origin is more northern, in the area where there are three species showing it. This, in turn, would suggest that *S. gigas* is the species of this group that has emigrated farthest from its original distribution area.



Figs. 29-32. Aedeagus in lateral and dorsal view of: 29-30, *S. titanus* n. sp., holotypus; 31-32, *S. gigas* n. sp., holotypus.

EVOLUTIONARY ASPECTS

I summarize here my views about relationships of the Chinese species of subgenus *Stomis*. At this time, because of probably inadequate sampling of the Chinese *Stomis* fauna, I am not prepared to undertake a detailed reconstruction of the phylogenetic history of the group.

The 12 Chinese species recognized, all placed in subgenus *Stomis*, probably form five monophyletic groups:

1, *vignai*;

2, *chinensis-robustus-schoenmanni;*

3, collucens-politus;

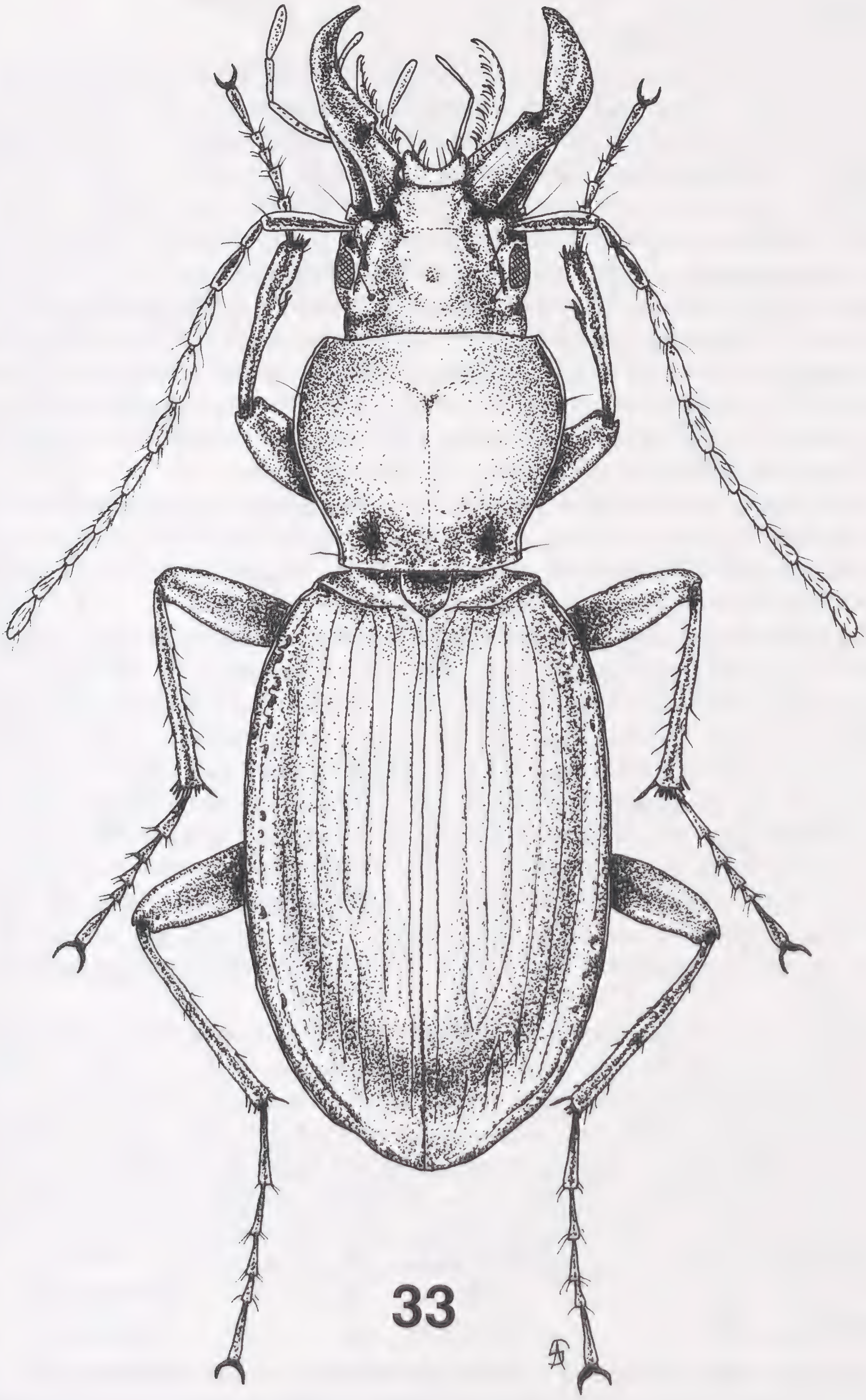


Fig. 33. Habitus of *S. gigas* n. sp., paratypus from Haba Shan.

4, deuvei-brivioi;

5, farkaci-facchinii-titanus-gigas.

The first group is composed by a single species, extremely isolated and with some very primitive characters. The second group is composed of three species, one winged and with wide distribution, the other two micropterous and appearently allopatric. These two species are probably of relatively recent differentiation even though they have very distinctive characters. The third group is composed of two species certainly very strictly related and allopatric, certainly of very recent differentiation. The fourth group is composed of two species almost sympatric, sharing some characters but not related to each with certainty. The last group is certainly the most curious and interesting from an evolutionary point of view: it is composed of four species, two of which live in Sichuan and the other two in Yunnan and in every couple of species one of them is relatively primitive and the other one very evolved. In this case it would be easy to say that the two most primitive ones are related among them and the other two among them, but it is almost as probable that in both cases speciation has occurred separately, maybe by specialization for different preys.

The following character states, postulated as apomorphies, are represented among the Chinese species of subgenus *Stomis*: metallic color; marked iridescence; large body size; extreme development of the forebody; elongate mandibles; notching of the terebral margin of the right mandible; and widening and flattening of the aedeagal apex.

Of potential special interest for phylogenetic reconstruction is the notching of the right mandible, a character unnoticed previously. This notch is present in all the European and Caucasian species and in four Chinese species, but is absent from *S. formosus, S. chinensis, S. collucens, S. politus, S. deuvei, S. brivioi, S. robustus, S. schoenmanni, S. vignai* and from the two Japanese species *S. prognathus* and *S. zaonus*. If, as seems very probable, the absence of this notch is the plesiomorphic character state and its presence the corresponding apomorphic character state, then the fact that the only species with the right mandible not notched are now found in China and Japan suggests that the evolution center of the Stomini has been in this area. Here a lineage with a mandibular notch has differentiated from the original population, later spreading westward, until reaching Europe. Clearly, the fact that all the European species have this notch would prove that they are a derived group, evidently of eastern origin.

The present-day geographical distribution of *Stomis* s. str. seems to be indeed relict: six species are known from Europe, three from the Caucasus and Iran, one from Turkestan, twelve from China and two from Japan. This distribution is similar to that of *Broscosoma* (Carabidae Broscini), another very ancient genus with relict, widely disjunct distribution limited to the Central Alps, Caucasus, Nepal, China and Japan. It is interesting to note that the distribution of both *Stomis* and *Broscosoma* in China is limited, as far as we know until today, to the mountains surrounding the Sichuan plain: the regions of Yunnan, Sichuan, Gansu and Shaanxi, although the species of *Broscosoma* are many less.

ACKNOWLEDGEMENTS

I express here my warmest thanks to Prof. G. E. Ball (Edmonton) for his invaluable advice about an earlier draft of the manuscript on which this paper is based; to Prof. A. Vigna Taglianti (Dipartimento di Biologia Animale e dell'Uomo, Università degli Studi "La Sapienza", Roma), Dr. M. Jäch and Dr. H.

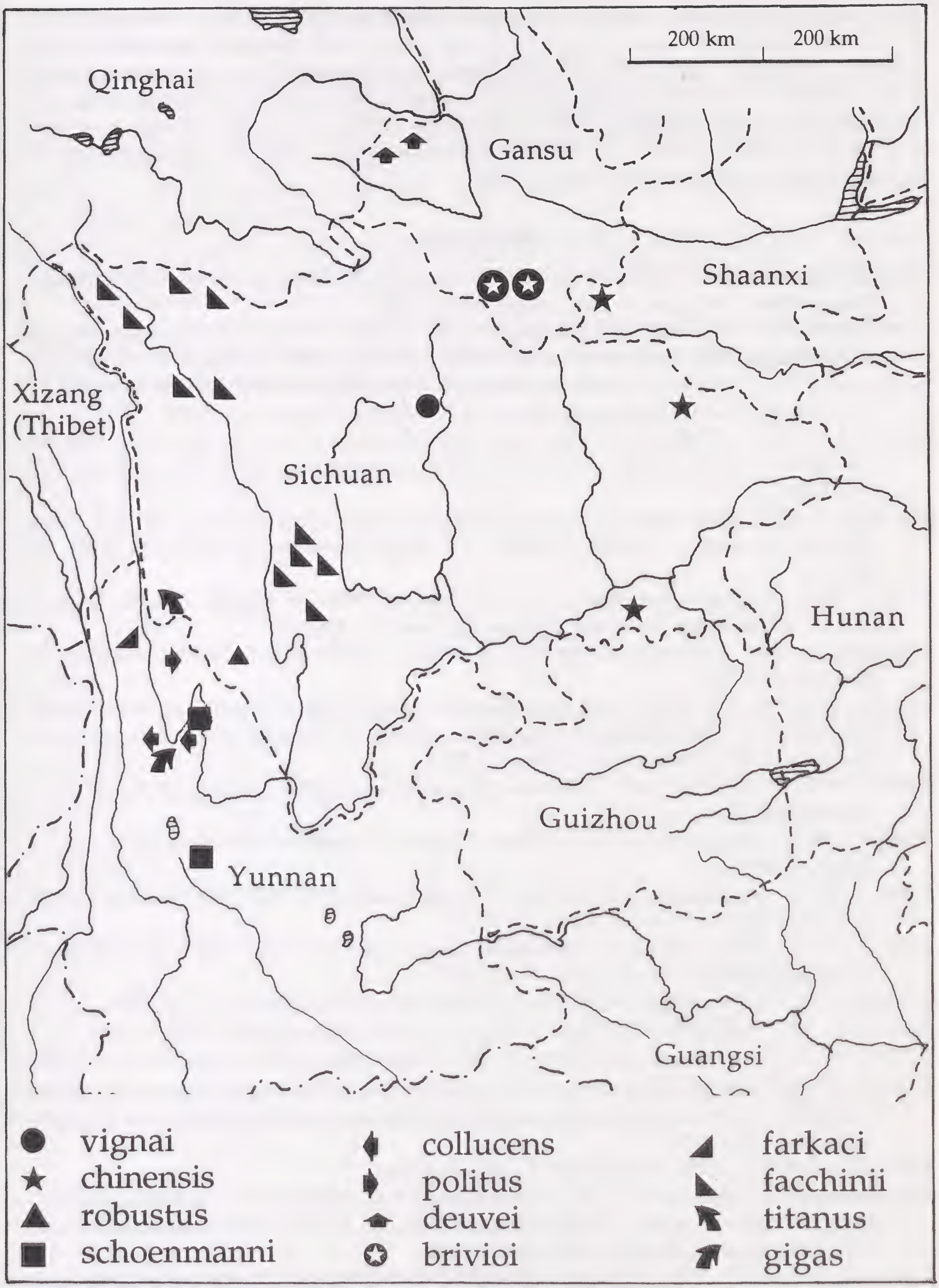


Fig. 34. Geographical distribution map of the Chinese species of *Stomis*.

Schönmann (Naturhistorisches Museum, Wien), Dr. M. Brancucci (Naturhistorisches Museum, Basel), Dr. T. Deuve (Museum National d'Histoire Naturelle, Paris), Dr. Y. Bousquet (Canadian National Collection, Ottawa), Rev. Dr. C. Brivio (P.I.M.E. Entomological Museum, Monza), Dr. J. Farkač and Dr. D. Kral (Praha), Dr. V. Beneš (Usti nad Labem), G. Ledoux (Clamart) and to all my friends of A.L.S.E. (Associazione Lombarda di Studi Entomologici, Milano) for variously helping me during the preparation of this work. A particular thank to Dr. A. Scupola (Verona) and to Dr. A. Solodovnikov (Krasnodar), for the beautiful habitus drawings illustrating this work.

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Mem. Soc. entomol. ital, 76: 61-129 *25 febbraio 1998*

Nicola PILON *

Atlante faunistico degli Staphylinini italiani con note sinonimiche (Coleoptera)

Riassunto - Viene trattata in dettaglio la distribuzione delle 47 specie di Staphylinini sicuramente presenti sul territorio italiano; per ogni specie viene fornito l'elenco delle località di cattura e una cartina corologica, assieme a note di tipo autoecologico e, a volte, sistematico. Vengono inoltre trattate 5 specie la cui presenza in Italia è dubbia e stabilite due nuove sinonimie:
Parabemus baderlei Scheerpeltz, 1947 = *P. fossor* (Scopoli, 1773) **n. syn.**
Ocypus depolii G. Müller, 1924 = *O. tenebricosus* (Gravenhorst, 1846) **n. syn.**

Summary - *Faunistic Atlas of italian Staphylinini with synonymic notes (Coleoptera)*
The detailed distribution of the 47 species belonging to the Tribe Staphylinini in Italy is dealed with. For each species the list of the locality records, a distributional map, notes about autoecology and, sometimes, taxonomy are given. Moreover 5 species doubtful for Italy are discussed and two new synonyms are established:
Parabemus baderlei Scheerpeltz, 1947 = *P. fossor* (Scopoli, 1773) **n. syn.**
Ocypus depolii G. Müller, 1924 = *O. tenebricosus* (Gravenhorst, 1846) **n. syn.**

Key words: Staphylinini, Italy, distribution, autoecology, new synonyms.

INTRODUZIONE

I gruppi di Coleotteri e, più in generale, di Insetti la cui distribuzione nel nostro paese sia conosciuta in dettaglio rimangono a tutt'oggi assai pochi; all'ormai "storico" lavoro di Magistretti (1965) sui Carabidi si sono aggiunti di recente quello di Sama (1988) sui Cerambicidi, quello di Curletti (1994) sui Buprestidi e quello di Canzoneri e Vienna (1987) sui Tenebrionidi (solo per l'Italia settentrionale); queste famiglie, seppur importanti, restano le uniche di tutti i Coleotteri per le quali sia stato redatto un catalogo faunistico-topografico relativo al territorio italiano, o ad una buona parte di esso. Nei numerosi volumi della collana "Fauna d'Italia" dedicati a famiglie o sottofamiglie di coleotteri viene sempre discussa, in maniera più o meno approfondita, la geonemia delle varie specie; tuttavia in tali opere l'aspetto faunistico ricopre sempre un ruolo secondario (come è ovvio accada in lavori principalmente sistematici) e viene talvolta trattato in modo sommario.

Per la maggior parte dei Coleotteri, comunque, se si vogliono avere informazioni relative alla loro distribuzione, si è addirittura costretti a consultare i lavori di Porta (1926, 1949, 1959) o di Luigioni (1929), con le conseguenze che è facile intuire.

Il presente lavoro è quindi un contributo allo sviluppo delle conoscenze faunistiche del nostro paese; bisogna tra l'altro ricordare che gli Staphylinini sono un gruppo composto in grande maggioranza da specie con mobilità molto ridotta, o perchè dotati di ali rudimentali o perchè comunque viene usato raramente il volo come mezzo di spostamento abituale. Ciò

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determina spesso la presenza di areali distributivi ben definiti e un notevole interesse biogeografico del gruppo nel suo insieme.

METODI

Il nucleo principale del lavoro è consistito nell'esaminare la grande quantità di materiale già esistente nelle principali collezioni pubbliche e private, oltre naturalmente a quella mia personale; l'elenco delle collezioni è il seguente:

— Museo civico di Storia Naturale di Bergamo
— Museo civico di Storia Naturale di Brescia
— Museo civico di Storia Naturale di Faenza
— Museo civico di Storia Naturale di Ferrara
— Museo civico di Storia Naturale di Genova
— Museo civico di Storia Naturale di Milano
— Museo civico di Storia Naturale di Morbegno
— Museo civico di Storia Naturale di Roma
— Museo civico di Storia Naturale di Venezia
— Museo civico di Storia Naturale di Verona
— Museo regionale di Storia Naturale di Torino
— Museo dell'Istituto di Entomologia dell'Università di Milano
— Museo dell'Istituto di Entomologia dell'Università di Pavia
— Museo dell'Istituto di Entomologia dell'Università di Sassari
— Dipartimento di Biologia Animale e dell'Uomo, Sez. Zoologia, Università degli Studi "La Sapienza", Roma
— Naturhistorisches Museum Wien
— Collezione Brivio (Monza)
— Collezione Callegari (Ravenna)
— Collezione Casartelli (Milano)
— Collezione Ciceroni (Roma)
— Collezione Fabbri (Filo, Ferrara)
— Collezione Fontaneto (Fontaneto d'Agogna, Novara)
— Collezione Goggi (Milano)
— Collezione Mariani (Seregno, Milano)
— Collezione Mei (Roma)
— Collezione Melloni (Bagno di Romagna, Ravenna)
— Collezione Monguzzi (Milano)
— Collezione Piccolino (Vigevano, Pavia)
— Collezione Proserpio (Como)
— Collezione Saltini (Carpi, Modena)
— Collezione Toledano (Verona)
— Collezione Usvelli (Faenza, Ravenna)
— Collezione Zanetti (Verona)
— Collezione Zoia (Genova)

Di tutti gli esemplari esaminati (alcune decine di migliaia) sono state verificate le determinazioni e registrate le località di cattura.

Purtoppo in quasi tutte le collezioni museali si trovano spesso esemplari recanti cartellini di località di fatto inutilizzabili, perchè scritti con grafie illeggibili, scoloriti, oppure indicanti toponimi introvabili sulle carte geografiche o ricorrenti in diverse zone del paese.

Nel caso di etichettature poco chiare ho sempre preferito, nel dubbio, scartare il dato; alcuni di questi, non utilizzati, avrebbero forse potuto ampliare la distribuzione di alcune specie, ma questa scelta ha privilegiato l'attendibilità dei dati.

Si sono inoltre utilizzati i dati riportati in letteratura di alcuni lavori faunistici di un certo rilievo o di Autori che si sono occupati di questo gruppo in modo approfondito.

Per ciascuna specie si è realizzata una scheda riportante nell'ordine: il nome della specie con relativo Autore e codice numerico attribuito nella "Checklist delle specie della Fauna italiana" (Ciceroni et al., 1995); la categoria corologica, ricavata dai dati di Horion (1965), Coiffait (1974), Newton (1987) e personali; la distribuzione sintetica in Italia; l'ecologia della specie, desunta da dati di letteratura (Horion, 1965; Koch, 1989) e soprattutto da osservazioni personali; note di confronto fra quanto noto fino a oggi e quanto accertato con la presente ricerca e talvolta anche di carattere sistematico; elenco delle località di cattura suddiviso per regione e provincia. Per la distribuzione in Italia è riportata anche una cifra fra parentesi; si tratta del numero di tavolette I.G.M. per cui è stata accertata la presenza della specie in questo lavoro. Tale numero non deve essere considerato come la quantificazione precisa della diffusione di una specie in Italia, ma può comunque essere visto come un indice della frequenza con cui essa è stata fino ad ora raccolta.

L'ordine sistematico di trattazione delle specie è lo stesso seguito nella recente "Checklist delle specie della Fauna italiana" (Ciceroni et al., 1995), con una sola differenza: il grande genere *Ocypus*, mantenuto unitario nel sopracitato lavoro, è stato diviso nei suoi quattro sottogeneri, riprendendo quindi la suddivisione fatta dallo stesso Lohse (1964), cui peraltro si erano ispirati gli Autori della "Checklist". Le determinazioni sono state effettuate sulla base dei lavori di Coiffait (1974) e Lohse (1964).

Per la definizione dei corotipi ho seguito le indicazioni di Vigna Taglianti et al. (1992); va però tenuto presente che di molte specie ad ampia corologia ben poco è conosciuto con esattezza circa la loro distribuzione in Asia.

L'elencazione delle regioni è da nord ovest verso sud, con Sicilia e Sardegna a chiudere l'elenco. Delle 20 regioni amministrative italiane alcune (Val d'Aosta, Umbria, Molise e Basilicata) non sono state trattate individualmente ma aggregate ad altre confinanti (rispettivamente Piemonte, Marche, Abruzzo e Calabria); le ragioni di questa scelta sono di ordine pratico e anche storico-geografico. All'interno di ciascuna regione le diverse province sono sistemate in base all'ordine alfabetico della sigla automobilistica, partendo comunque dal capoluogo; non sono state considerate le sette province di recente istituzione.

Ho preferito non riportare accanto a ciascuna località i dati relativi ad ogni reperto (n° di esemplari, data di cattura, raccoglitore, collezione in cui si trovano); tale scelta, se da un lato rende il lavoro meno esauriente, dall'altro evita che esso raggiunga dimensioni abnormi e lo rende molto più agile da consultare. Mi sono limitato a contrassegnare con un punto esclamativo (!) le località di cui si trovano esemplari (anche o solo) nella mia collezione. Le località desunte dalla letteratura sono invece affiancate da un numero fra parentesi che fa riferimento alla pubblicazione. I riferimenti bibliografici sono i seguenti:

(1) = Peez e Kahlen, 1977
(2) = Schatz, 1988
(3) = Angelini e Montemurro, 1984
(4) = Zanetti, 1992

Alcuni altri lavori faunistici (Brivio, 1970; Zanetti, 1978; Chemini & Zanetti, 1982; Daccordi & Zanetti, 1987; Pilon & Zanetti, 1991; Pilon, 1995) non sono stati citati in quanto il materiale su cui si basavano è stato comunque visto direttamente nelle collezioni in cui è conservato.

In base alle località citate nelle schede ho poi realizzato le cartine corologiche utilizzando il reticolo I.G.M. 1:25000, che consente di scomporre il territorio italiano in aree approssimativamente quadrate di circa 10 km di lato. Tale metodo è da tempo ampiamente in uso per la realizzazione di atlanti faunistici di molti gruppi di vertebrati (uccelli, mammiferi, anfibi e rettili) ed è stato da me usato in precedenza per la faunistica degli *Ocypus* del gruppo *alpestris* (Pilon, 1995). Ritengo che, fra le varie rappresentazioni grafiche attualmente in uso sia l'unica che visualizzi in modo essenziale ed oggettivo la situazione distributiva di un taxon in un determinato territorio.

Sia nell'elenco delle località che nelle cartine le specie sono sempre state trattate in modo unitario, senza tenere conto della eventuale esistenza di razze geografiche; molte delle sottospecie attualmente descritte per questo gruppo hanno infatti valore piuttosto dubbio o comunque da chiarire ed esula dagli scopi di questo lavoro la trattazione dettagliata di tali aspetti, cui d'altra parte viene attribuita una importanza sempre minore nella sistematica moderna. Ad ogni modo nelle note viene segnalata e commentata l'esistenza di queste forme.

ELENCO DELLE SPECIE

48.132.0. 001.0 *Creophilus maxillosus* (Linnaeus, 1758)

CATEGORIA COROLOGICA. Oloartico (introdotto in alcune regioni dell'emisfero Australe).

GEONEMIA ITALIANA. Tutta Italia (201).

ECOLOGIA. Ubiquista, eurizonale (0-2000 m), saprofilo (soprattutto necrofilo).

NOTE. Si tratta dell'unica specie, fra gli Staphylinini, rinvenibile ovunque nel nostro paese, con scarsissime limitazioni di altitudine, latitudine ed ambiente.

PIEMONTE E VAL D'AOSTA. TO: Torino; Ceresole; AL: Spinetta Marengo!; Bosco Marengo!; Tortona; Ovada; Castelnuovo Scrivia; Arquata Scrivia; Voltaggio; CN: V. Pesio; Palanfrè; Pezzolo Valle Uzzone; NO: Mergozzo; Domodossola; Malesco; Macugnaga; L. Vannino (V. Formazza); VC: Sagliano; Oropa; Breia; Scopello!; AO: Fiernaz!.

LIGURIA. GE: Genova; Voltri; Varazze; Casella; Cavi; Chiavari; IM: Imperia; S. Remo; Taggia; Nava; SV: Savona; Albisola; Loano; Laigueglia.

LOMBARDIA. MI: Milano (Niguarda; Musocco); Sesto S. Giovanni; Cologno Monzese; Segrate; Cusago!; Garbagnate; Monza; Vaprio d'Adda; BG: Schilpario; BS: Brescia; Fornaci; Monte Isola; Altopiano di Cariadeghe (Serle); Paitone; Buco del Frate (Paitone); Picedo; CO: L. di Annone; Cascina Bracchi (Casatenovo); L. di Sartirana (Merate); Calco; Lierna; Campione; Gaggino Faloppio!; Valmorea!; Piana di Spagna (Gera Lario); CR: Cremona; MN: Bosco Fontana (Marmirolo); Quistello; PV: Pavia!; Spessa!; Mortara!; SO: Sondrio; Morbegno; Cosio; Lovero; Grosio!; Teglio; Valdisotto; S. Nicolò Valf.; Livigno; V. Codera; Borgonuovo (Piuro)!; Teggiate!; Montespluga!; VA: Ispra.

TRENTINO ALTO ADIGE. BZ: Grödnertal (V. Gardena); St. Magdalena Gsies (S. Maddalena Casies)!; Kasern Ahrntal (Casere V. Aurina); TN: Avio; M. Baldo (Madonna della Neve); V. Ampola; V. Genova; Smarano; Cembra.

VENETO. VE: Venezia; Mestre; Casse di colmata (Fusina)!; Chioggia; BL: Feltre; Cortina; S. Vito;

Auronzo; Falcade; Calalzo; RO: Rovigo; Rosolina Mare; TV: Treviso; Ponzano; Cellarda; Follina; Crocetta del Montello; VI: Chiampo; VR: Verona; Cancello; Oppeano; Torricelle; Cerea; Legnago; Vajo di Squaranto; Roverè; Selva di Progno; Malcesine.

FRIULI VENEZIA GIULIA. TS: Trieste; Sistiana; Opicina; GO: Gradisca d'Isonzo; Monfalcone; UD: Carnia Piani; Arta; Piano d'Arta; Forni di Sotto.

EMILIA ROMAGNA. BO: Bologna; FE: Ferrara; FO: Forlì; Forlimpopoli; PR: Parma; RA: Pineta di Classe; Faenza; Brisighella; RE: P.so del Cerreto.

TOSCANA. FI: M. Giovi; Marradi; Badia della Valle (Marradi); GR: Marina di Grosseto!; Follonica!; Castiglion della Pescaia!; Is. Giglio; LU: Lucca; SI: Lucarelli (Radda).

MARCHE E UMBRIA. AN: Staffolo; AP: Vidoni (Amandola); MC: Macerata; Camerino; Bolognola; PS: Montecchio!; PG: Perugia; Lippiano (Città di Castello); Gubbio.

LAZIO. RM: Roma (Acquacetosa; M. Sacro); S. Marinella; Marino; Nemi; Olevano Rom.; Riofreddo; LT: Cisterna; RI: Tarano; VT: Tarquinia; Bassano (Sutri); M. Cimino.

ABRUZZO E MOLISE. AQ: Oricola; PE: Caramanico.

PUGLIA. BR: Francavilla Fontana; FG: Rodi Garganico; Marina di Chieuti; LE: Taviano; TA: Manduria; S. Pietro in Bevagna.

CAMPANIA. NA: Camaldoli (Napoli); CE: Aversa; SA: S. Biase (Ceraso).

CALABRIA E BASILICATA CZ: M. Gariglione; MT: Matera.

SICILIA. PA: Palermo; Ficuzza; AG: Is. Lampedusa; CT: Barriera del Bosco (Catania); ME: Is. Stromboli; SR: Siracusa; Cassaro!; TP: Marsala; Mazara.

SARDEGNA. CA: Elmas; Assemini; Capoterra; Quartu S. Elena; Selargius; Senorbì; NU: Macomer; Aritzo; Desulo; Ottana; OR: Oristano; SS: Ozieri; Tempio Pausania; Porto Torres; Golfo Aranci; Is. Molara.

48.133.0. 001.0 *Ontholestes haroldi* (Eppelsheim, 1884)

CATEGORIA COROLOGICA. Centroeuropeo.

GEONEMIA ITALIANA. Alpi centro-orientali (17).

ECOLOGIA. Submontano e montano (200-1700 m), saprofilo (soprattutto coprofilo).

NOTE. La diffusione di questa specie è stata finora probabilmente sottostimata, anche se essa, in effetti, non è mai frequente sulle Alpi come le due altre congeneri.

LOMBARDIA BG: Bordogna!; Carona; SO: Torre S. Maria!; V. Codera; Dazio!; Val Canale (Caiolo)!

TRENTINO ALTO ADIGE. BZ: Brixen (Bressanone (1); TN: P.so Tremalzo (V. Ampola)!; L. di Idro.

VENETO. BL: Vincheto di Cellarda (Feltre); Falcade; Auronzo.

FRIULI VENEZIA GIULIA. PN: Campone!; Castelnuovo d. F.!; UD: Arta; P.so Cason di Lanza!; Cosizza.

48.133.0. 002.0 *Ontholestes marginalis* (Gené, 1836)

CATEGORIA COROLOGICA. W-mediterraneo.

GEONEMIA ITALIANA. Sardegna (8).

ECOLOGIA. Eurizonale, saprofilo (soprattutto coprofilo).

NOTE. Si tratta quasi certamente dell'unica specie del genere presente sull'isola. Al Museo di Vienna (coll. Scheerpelz) si trovano due esemplari cartellinati "Sicilia", ma l'indicazione è quasi certamente erronea.

SARDEGNA. CA: M. Sette Fratelli; Pula!; Gesturi; NU: Urzulei!; Fonni; Dorgali; Stagno di Bara; Laconi.

48.133.0. 003.0 *Ontholestes murinus* (Linnaeus, 1758)

CATEGORIA COROLOGICA. Sibirico-europeo, introdotto in Nord America (Smetana, 1981).

GEONEMIA ITALIANA. Italia continentale, Sicilia (270).

ECOLOGIA. Eurizonale (0-2000 m), saprofilo (soprattutto coprofilo).

NOTE. Sia Luigioni che Porta segnalano lo specie di tutta Italia, Sardegna compresa; tuttavia non ho mai visto esemplari di quest'isola, ove credo sia sostituita da *O. marginalis*.

PIEMONTE E VAL D'AOSTA. TO: Gassino; Alpignano; Stupinigi; Beinasco; Exilles; Ivrea; Colle della Maddalena; Usseaux; Bardonecchia; Sauze d'Oulx; Susa; Balme; Pian della Mussa; Pialpetta; AL: Spinetta Marengo!; Lobbi!; Borghetto Borbera; Montecapraro (V. Curone); Cassano Spinola; Voltaggio; Ovada; AT: S. Paolo; CN: Limone Piem.; Palanfrè; S. Giacomo d'Entracque; Certosa Pesio; Alta V. Tanaro; Viozene; M. Ormea; Garessio; Acceglio; M. Mongioie; NO: Malesco; Premia!; M. Leone; V. Cairasca; Vanzone; Macugnaga; Mergozzo; Premeno; VC: Piedicavallo; Oropa; L. della Vecchia (Oropa); Pratetto; Pollone!; Varallo; Serravalle Sesia!; Scopello!; Campertogno; Riva Valdobbia!; AO: Courmayeur; Etroubles!; St. Jacques d'Ayas; Fiernaz!; Gressoney St. Jean!; Col de Joux (La Thuile).

LIGURIA. GE: Genova; Sant. Vittoria; Molassana; Chiavari; Fontanigorda; M. Antola; S. Stefano d'Aveto; Casella; IM: S. Romolo; Bordighera; Baiardo; M. Guardiabella (V. Impero); SV: Savona; Sassello; Cairo Montenotte.

LOMBARDIA. MI: Milano; Monza; Ceriano Laghetto; Cogliate; Lodi; BG: Bergamo; Sorisole; Ghisalba; S. Pellegrino; Antea (S. Pellegrino); S. Giovanni Bianco!; BS: Brescia; Gussago; Edolo; Cecino; Pisogne; Borno; Altopiano di Cariadeghe (Serle); Ponte di Legno; CO: Valmorea!; Lanzo d'Intelvi; Montemezzo; L. di Sartirana (Merate); Casatenovo; S. Pietro (Civate); Campione; Barzio; M. Grigna Merid.; Pian delle Betulle; Esino Lario; Margno; Canzo; CR: Cremona; Rivolta d'Adda; PV: Pavia!; Sostegno!; Spessa; M. Colletta; SO: Cosio; Morbegno!; Civo; Dazio!; Bagni del Masino; Bema; Albaredo; Gerola; Tartano!; Torre S. Maria!; Caiolo!; V. Livrio; M. Vespolo; Castellina (Sondrio); Ligari; Triangia!; Ponte Valt.; Grosio!; V. Grosina; Bormio; Isolaccia; V. Codera; V. Forcola (Menarola)!; Borgonuovo (Piuro)!; Teggiate!; VA: Viggiù; Agra; L. di Comabbio!; Gaggiolo.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Ritten (Renon); Brixen (Bressanone) (1); Rodeneck (Rodengo)!; Wolkenstein in G. (Selva Gardena); Tiers (Tires); Niederdorf (Villabassa); St. Magdalena Gsies (S. Maddalena Casies)!; Kasern (Casere); Sand in Taufers (Campo Tures); Staben (Stava, V. Venosta); Eyrs (Oris)!; Trafoi (1); TN: V. di Genova; Madonna di Campiglio; Andalo; V. Ampola; M. Caret Alto; Avio; S. Michele all'Adige; Brentonico; Fiera di Primiero; Sagron; Moena; Campitello di Fassa; Tesero.

VENETO. VE: Marghera; Venezia (Lido; S. Giuliano); foce F. Sile; Bibione; BL: Alleghe; Cortina; Vigo di Cadore; Auronzo; Cansiglio; Feltre; Cellarda; Alano di Piave; PD: Colli Euganei; Teolo; TV: Ponzano; S. Pietro (Valdobbiadene); VR: Avesa; Sommacampagna; Montorio; Sona; Cerea; Breonio; Torri Benaco; Grezzana; Oppeano, Vallese; Cancello; Sega di Ala; Selva di Progno; Fittanze; M. Altissimo (M. Baldo); VI: M. Grappa; Valdagno; Valli del Pasubio.

FRIULI VENEZIA GIULIA TS: Malchina; Duino; Sistiana; Basovizza; GO: Doberdò; PN: M. Cavallo; Campone!; Clauzetto!; Castelnuovo d. F.!; UD: Arta; Cividale; Paularo!; Paluzza; Cercivento; P.so Pura.

EMILIA ROMAGNA. BO: Bologna; Gaibola; Monzuno!; FO: Riccione; Campigna; Tredozio; MO: Montese; M. Cimone; Sassuolo; PC: Piacenza; Rocca (V. Nure)!; PR: Compiano!; M. Zuccone!; RA: Faenza; Brisighella; Casola Valsenio.

TOSCANA FI: Firenze; M. Morello; Fiesole; Marradi; Badia della Valle (Marradi); M. Faggiola; P.so del Muraglione; Pietramala; AR: Montegonzi!; Alpe della Luna; Sintigliano; PI: Pisa; S. Rossore!; PT: Pianosinatico; Boscolungo; MS: P.so Cisa.

MARCHE E UMBRIA. AN: ìenigallia; Staffolo; PS: M. Carpegna; M. Catria; AP: Montemonaco; PG: Perugia; Spoleto; Morano (Gualdo Tadino); Bocca Trabaria; M. Cucco.

LAZIO. RM: Roma (Acquacetosa; Villa Ada); Fiumicino; Maccarese; Nettuno; Riofreddo; Gerano; M. Pellecchia; M. Autore; Colli Albani; Fosso Verginese (Tolfa); Manziana; Ladispoli; FR: Filettino; M. Viglio; Campo Staffi (M. Simbruini); M. Scalambra; Guarcino; LT: M. della Difesa; RI: Orvinio; Prati di Cottanello; Montasola; Poggio Mirteto staz.; Tarano; M. Terminillo; VT: Tuscania.

ABRUZZO E MOLISE. AQ: Pescasseroli; P.so Godi (Scanno); Civitella Alfedena; Castel di Sangro; M. Sirente; Pettorano sul Gizio; M. della Meta (L. Vivo; V. Fondillo; Rif. Campitelli); M. Tranquillo; Ovindoli; Campo Imperatore; Fonte Romana (Maiella); CH: M. Maielletta; Lama dei Peligni; TE: M. Gorzano; Scerne di Pineto; CB: Campitello Matese; IS: Montenero V. Cocchiara; S. Pietro Avellana.

CAMPANIA. NA: Napoli; CE: Sella del Perrone (Matese); S. Pietro Infine.

CALABRIA E BASILICATA. CZ: Sambiase; M. Gariglione; CS: Silvana Mansio; La Fossiata; L. Ampollino; Camigliatello; Orsomarso; Cozzo del Pesco (Rossano)!; PZ: Pollino (Piano Ruggio!; Piani di Vaquarro; Colloreto); M. Vulture; Pietrapertosa; M. Sirino; MT: Policoro (3).

SICILIA. PA: Palermo; Corleone; Piano Zucchi (Madonie); Ficuzza; ME: Mistretta; M. Soro.

48.133.0. 004.0 *Ontholestes tessellatus* (Fourcroy, 1785)

CATEGORIA COROLOGICA. Sibirico-europeo.

GEONEMIA ITALIANA. Alpi (109).

ECOLOGIA. Da submontano ad alpino (200-2000 m), saprofilo (soprattutto coprofilo).

NOTE. Porta cita la specie anche del Lazio e della Sicilia: al Museo di Milano (coll. Alzona) esistono in effetti due esemplari etichettati "Sicilia". Si tratta comunque di un vistoso errore di cartellinatura; la specie non esiste al di fuori della regione alpina intesa in senso lato. Sempre al Museo di Milano si trova un esemplare dei dintorni di Milano; tale dato, se vero, è dovuto con molta probabilità a trasporto passivo (*O. tessellatus* si trova regolarmente sui letamai).

PIEMONTE E VAL'D'AOSTA. TO: Bardonecchia; Sestriere!; Soucheres Basses!; Pialpetta; Balme; Andrate; CN: Alta V. Po; NO: M. Leone; Macugnaga; Premia!; VC: Sagliano; Graglia; Tavagliano; Oropa; Pratetto (V. Cervo); V. Sessera; Scopello!; Riva Valdobbia; Alagna; V. Vogna!; AO: Gaby!; Promindo (Valtournenche)!; Valsavarenche; V. Cogne.

LIGURIA. IM: Cosio d'Arroscia; SV: Calizzano.

LOMBARDIA. BG: Oltre il Colle; Carona; Selvino; Schilpario; Costa V. Imagna; BS: V. Vestino; Esine; Odeno; Rif. Cortebona (Vione); P.so Tonale; CO: Moncodeno (M. Grigna Sett.); Pian delle Betulle; Margno; SO: Cosio; V. Bomino (Bema); Poira; Albaredo; Gerola; Tartano!; Ardenno; Ligari; Triangia; Chiesa Valmalenco; Torre S. Maria!; Rif. Bosio (M. Disgrazia); M. Vespolo; Val Canale (Caiolo)!; Grosio!; Lovero; Isolaccia; Bormio!; V. Belviso; S. Caterina Valf.; S. Nicolò Valf.; V. Codera; Borgonuovo (Piuro)!; Teggiate!.

TRENTINO ALTO ADIGE. BZ: Ritten (Renon) (1); Oberbozen (Soprabolzano) (1); Aferer Tal (Val di Eores); Seiser Alm (Alpe di Siusi); St. Christina in Gr. (S. Cristina Valgardena); Tils (Tiles); Rodeneck (Rodengo)!; Bruneck (Brunico); Niederdorf (Villabassa); Innichen (S. Candido); St. Magdalena Gsies (S. Maddalena Casies)!; Schnalstal (V. Senales); Vinschgau (V. Venosta) (1); Sterzing (Vipiteno) (1); Trafoi (1); TN: Val Ampola; Val di Genova; Pellizzano; V. di Rabbi; Pejo; Vermiglio!; S. Giacomo (Brentonico); Smarano; Malè; Palù di Giovo; Canazei; Folgaria; Moena; Sagron; Predazzo (2); Lardaro.

VENETO. BL: Feltre; M. Pavione; Cansiglio; Vigo di Cadore; Laggio di Cadore; S. Stefano di Cadore; Lorenzago; Falcade; V. Visdende; V. Digon; Auronzo; Cortina!; Sappada; Alleghe; TV: S. Pietro

(Valbobbiadene); P.so S. Boldo; VI: Asiago; Valli del Pasubio; VR: Vajo di Squaranto; Boscochiesanuova; Campofontana; Rif. Novezzina (M. Baldo).

FRIULI VENEZIA GIULIA. TS: Trieste; PN: M. Cavallo; Claut; Clauzetto!; Castelnuovo d. F.!; UD: Paularo!; Paluzza; Treppo Carnico; M. Mataiur; Arta; Piano d'Arta.

48.134.0. 001.0 *Emus hirtus* (Linnaeus, 1758)

CATEGORIA COROLOGICA. Europeo.

GEONEMIA ITALIANA. Italia continentale (119).

ECOLOGIA. Eurizonale (0-2000 m), saprofilo (soprattutto coprofilo).

NOTE. Questa specie non vive solo, come ritenuto comunemente, in regioni montuose, ma anche in località di pianura o addirittura costiere. Tuttavia è particolarmente diffusa e comune nelle valli aperte e soleggiate delle Alpi centrali e occidentali.

PIEMONTE E VAL D'AOSTA. TO: Susa; Soucheres Basses!; Pialpetta; Ribordone; AL: Arquata Scrivia; Ovada; AT: Nizza Monferrato; CN: Ceva; M. Mondolè; Limone Piem.; V. Pesio; Crissolo; V. Stura di Demonte; NO: Malesco; Macugnaga; Premia!; M. Leone; S. Domenico di Varzo; VC: Breia; Scopello!; Riva Valdobbia; Alagna; AO: Fiery (Ayas); Fiernaz!; La Thuile; Courmayeur; Cogne.

LIGURIA. GE: Genova (Righi; Borzoli); M. Fasce; M. Moro; Quezzi; Molassana; Casella; Torriglia; SV: Albisola; Varazze.

LOMBARDIA. MI: Milano (Bovisa; Lambrate); Monza; CO: Lecco; Margno; Cascina Bracchi (Casatenovo); BS: V. Trobiolo (Pisogne); Cividate Camuno; Zoanno; S. Apollonia; P.so Tonale; V. Saviore; PV: Pavia; SO: Sondrio; Cosio; Poira!; Roncaglia; Dazio; V. Masino; V. di Mello; Colorina; Chiesa Valmalenco; Lanzada; Torre S. Maria!; Triangia!; Alpe Campelli (Albosaggia); Caiolo; V. Livrio; Grosio!; Aprica; Bormio; Pianazzo; V. Codera; Gordona!; Teggiate!; Borgonuovo (Piuro)!.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Ritten (Renon); Klobenstein (Collalbo) (1); Montiggler Seen (Laghi di Monticolo) (1); Glen, Auer (Gleno, Ora); Brixen (Bressanone) (1); Taufers (Tures) (1); Laas (Lasa)!; TN: V. di Genova; L. Nambino (Madonna di Campiglio); Avio; Vetriolo; Levico; Sagron; Villa Welsperg; Cembra; Lona; L. Lagorai.

VENETO VE: Chirignago (Mestre); BL: Belluno; Cortina; Auronzo; V. Zoldo; V. d'Alleghe; Falcade; VR: M. Baldo (La Colma; M. Altissimo; Madonna della Neve; Rif. Novezzina); Campofontana; Giazza.

FRIULI VENEZIA GIULIA. TS: Duino; Basovizza; UD: Forni; Piano d'Arta.

EMILIA ROMAGNA. MO: La Santona (Pavullo); FO: M. Fumaiolo; Verghereto; Poggio Scali; P.so dei Mandrioli; PC: Lago Moo (Ferriere).

TOSCANA. FI: M. Morello; LI: Livorno; LU: Foce delle Radici.

MARCHE E UMBRIA. MC: Macerata; PS: M. Petrano; PG: Gaifana.

LAZIO. RM: Roma (Acquacetosa; Caffarella); Valle Fiume (Monti della Tolfa); Manziana; Ladispoli; FR: M. Viglio; Filettino; M. Aurunci; LT: Gaeta; RI: Poggio Mirteto.

ABRUZZO E MOLISE. AQ: L. Vivo (M. della Meta); Coppito; Ovindoli; P.so Godi (Scanno); Fonte Romana (Maiella); CH: M. Maielletta.

PUGLIA. FG: Forquet!.

CALABRIA E BASILICATA. CZ: Sambiase; Buturo; CS: L. dei Due Uomini (Fagnano Castello); Cozzo del Pesco (Rossano)!; PZ: M. Viggiano.

48.135.0. 001.0 *Abemus chloropterus* (Panzer, 1796)

CATEGORIA COROLOGICA. Centroeuropeo.

GEONEMIA ITALIANA. Venezia Giulia (3).

ECOLOGIA. Submontano, silvicolo.

NOTE. Luigioni cita tale entità delle Alpi Marittime (Sospel, in territorio politicamente francese) e di Bolzano; quest'ultima segnalazione è ripresa anche da Porta. Entrambe queste località sembrano oggi assai improbabili, ma non si può escludere, trattandosi di una specie di difficile cattura e ad areale frammentato, che, perlomeno nella prima località, essa sia davvero presente.

FRIULI VENEZIA GIULIA. TS: Trieste; Banne; Grozzana; V. Rosandra.

48.136.0. 001.0 *Platydracus chalcocephalus* (Fabricius, 1801)

CAT. COROLOGICA. Centroeuropeo.

GEONEMIA ITALIANA. Venezia Giulia (1).

ECOLOGIA. Eurizonale, silvicolo, saprofilo.

NOTE. Le segnalazioni di questa specie per altre regioni (Piemonte, Emilia, Umbria) sono certamente dovute a confusione con specie simili; si tratta infatti di un taxon a gravitazione più orientale che penetra nella regione fisica italiana in modo estremamente marginale nell'entroterra di Trieste (classico distretto faunistico "di confine").

FRIULI VENEZIA GIULIA. TS: Villa Opicina; Percedol.

48.136.0. 002.0 *Platydracus flavopunctatus* (Latreille, 1804)

CATEGORIA COROLOGICA. S-europeo.

GEONEMIA ITALIANA. Italia continentale (60).

ECOLOGIA. Eurizonale, saprofilo (soprattutto coprofilo).

NOTE. Luigioni e Porta segnalano questa specie anche della Sardegna, ma personalmente non ho mai visto esemplari di alcuna specie di *Platydracus* raccolti in Sardegna o Sicilia; viene quindi confermata la assenza, notata da Newton (1996), di questo genere dalle aree non continentali.

PIEMONTE E VAL D'AOSTA. TO: Sacra S. Michele; AL: Mongiardino (Ovada); CN; Pezzolo V. Uzzone; Alta V. Tanaro; Limone Piem.; Ponte Nava; Acceglio.

LIGURIA. GE: Genova; Borzoli; Casella; SV: Borgio Verezzi.

LOMBARDIA. BS: Brescia; PV: Oriolo.

TRENTINO ALTO ADIGE. TN: Avio; BZ: Bozen (Bolzano) (1).

VENETO. TV: Segusino; VR: Verona; M. Baldo; Torri Benaco.

FRIULI VENEZIA GIULIA. TS: Duino; Opicina; Basovizza; Sistiana; Malchina; PN: Tramonti di Sopra; UD: Paluzza.

EMILIA ROMAGNA. BO: Paderno; FO: Premilcuore!; Campigna; PC: Bobbio!; Ferriere; PR: Casanova (Bardi); RA: Brisighella.

TOSCANA. FI: M. Morello; Sesto Fiorentino; Marradi; Badia della Valle (Marradi); AR: P.so dei Mandrioli; GR: Alberese; Torre di Collelungo; LI: Antignano.

MARCHE E UMBRIA. MC: Cingoli; Castelsantangelo sul Nera; PS: Apecchio; M. Petrano; PG: Perugia; Gubbio; Lippiano (Città di Castello); Gubbio; TR: Polino.

LAZIO. RM: Monti della Tolfa; Roccagiovine; Riofreddo; Arsoli; Gerano; Sasso (staz. Furbara); Percile; Palombara Sabina; RI: Rieti; Poggio Mirteto.

ABRUZZO E MOLISE. AQ: Raiano; Campo Imperatore; V. del Vasto (Gran Sasso); M. della Meta; Pratola Peligna; Fonte Romana (Maiella); PE: Popoli.

CALABRIA E BASILICATA. CS: Colloreto (Pollino).

48.136.0. 003.0 *Platydracus fulvipes* (Scopoli, 1763)

CATEGORIA COROLOGICA. Sibirico-europeo.

GEONEMIA ITALIANA. Italia continentale (147).

ECOLOGIA. Da planiziale a montano (0-2000 m), euritopo, igrofilo, tendenzialmente silvicolo.

NOTE. Questa specie è diffusa probabilmente in tutta l'Italia continentale e la sua minore frequenza al Sud è dovuta forse solo alla rarefazione, in tali regioni, degli ambienti umidi da essa scelti come habitat.

PIEMONTE E VAL D'AOSTA. TO: Collina di Torino; Parco La Mandria (Venaria); Bardonecchia; Borgofranco d'Ivrea; CN: Fossano; Montaldo di Mondovì!; Certosa Pesio; Terme di Valdieri; Palanfrè; Crissolo; Pian del Re; Alta V. Grana; NO: Fontaneto d'Agogna; Cravegna (Baceno)!; VC: Colle della Vecchia (Piedicavallo); V. Chiobbia (V. Cervo); Oropa; M. Barone; Sostegno; Pray!; Varallo; Campertogno; AO: Campo Laris (Champorcher); Brusson; Champoluc; Courmayeur; Val Ferret; La Thuile!; Entreves; Valsavarenche; Cogne.

LIGURIA. SV: Calizzano; IM: Piaggia (Monesi); P.so Ghimbegna (Ceriana)!.

LOMBARDIA MI: Milano (Baggio); Correzzana; Monza; Bernate Ticino!; Castelletto di Cuggiono!; BG: Celana!; Albino; Valcava; V. di Scalve; V. Brembana; S. Pellegrino; Torbiere L. d'Iseo; Endine Gaiano!; Presolana; BS: Colle S. Eusebio!; Cortine (Nave)!; V. Saviore; Lugana; CO: Valmorea!; Albate; Brivio; M. Grigna; M. Resegone; Ballabio Sup.; Montemezzo!; PV: Pavia (Bosco G. Negri!); Vigevano; SO: Albaredo; Tartano!; Villa di Tirano!; Arigna; Bodengo!; V. Codera; VA: Ceriano Laghetto!; Cittiglio; Venegono; Mercallo.

TRENTINO ALTO ADIGE. BZ: Klobenstein (Collalbo) (1); Brixen (Bressanone) (1); Marling (Marlengo) (1); Trafoi (1); TN: Madonna di Campiglio; Loppio; V. Ampola; P.so Tremalzo (V. Ampola); Arco; Malga Mare (Pejo); Sagron; P.so di Cereda; S. Leonardo (Avio) (4); Le Grave (Civezzano); L. Pudro (Vigalzano); L. di Caldonazzo (Inghiaie, S. Cristoforo); Laghestel (Pinè).

VENETO. VE: Marghera; S. Giuliano; Punta Sabbioni; BL: Belluno; Longarone; Cortina; Vigo di Cadore; Laggio di Cadore; Lorenzago; VI: Monteviale; VR: Sona; Nogara; Vajo di Squaranto; Vallese.

FRIULI VENEZIA GIULIA GO: Monfalcone; foce F. Timavo; UD: P.so di Tanamea; Musi!; Carnia Piani; Peonis; Paularo; Belvedere di Grado.

EMILIA ROMAGNA. BO: Bologna; Minerbio; FE: Filo; Voltana; Bosco Panfilia (S. Agostino); MO: Spilamberto; Vignola; PC: Sarmato!; RA: Ravenna; Cotignola; Pineta S. Vitale; Faenza.

TOSCANA. FI: Firenze; Sesto Fiorentino; Signa; AR: Montegonzi!; Anghiari; Camaldoli; GR: Massa Marittima; M. Amiata; Arcidosso; Tombolo (Orbetello); LI: Vicarello; PI: Marina di Pisa; PT: Abetone; SI: Siena.

MARCHE E UMBRIA. AN: Senigallia; Portonovo; AP: Grottammare; PG: Perugia; Foligno; Bevagna; Lippiano (Città di Castello).

LAZIO. RM: Roma (Montesacro; Acquacetosa; E.U.R.; Tomba di Nerone); Acilia; Maccarese; Percile; Palombara Sabina; LT: L. di Fondi; dint. Norma.

ABRUZZO E MILISE. AQ: Pratola Peligna; PE: Popoli; Montesilvano Marina.

PUGLIA. TA: foce F. Lato.

CALABRIA E BASILICATA. MT: Bosco Pantano (Policoro).

48.136.0. 004.0 *Platydracus latebricola* (Gravenhorst, 1806)

CATEGORIA COROLOGICA. Centroeuropeo.

GEONEMIA ITALIANA. Italia sett. e cent. (19).

ECOLOGIA. Submontano e montano, xerofilo, mirmecofilo.

NOTE. La presenza di questa entità nell'Italia centromeridionale era finora dubbia; una recente cattura in Abruzzo, unita ad un esemplare etichettato "Apennin Mittel-Italien" presente nelle collezioni del Museo di Vienna, mi fanno ritenere che essa (sempre rara e di difficile cattura) sia effettivamente diffusa nell'Appennino centrale e, forse, anche meridionale.

PIEMONTE E VAL D'AOSTA. NO: Fontaneto d'Agogna; Malesco; Cravegna (Baceno)!.

LOMBARDIA. BG: Ardesio; PV: M. Pietra Corva (Romagnese)!; SO: Torre S. Maria!.

VENETO. BL: Cansiglio.

TRENTINO ALTO ADIGE. BZ: Sigmundskron (Castel Firmiano) (1); Margreid (Magrè); Sarntal (V. Sarentina) (1); Brixen (Bressanone) (1); Vahrn (Varna) (1); Meran (Merano) (1); Trafoi (1); TN: Bellamonte (2).

FRIULI VENEZIA GIULIA. TS: Contovello; GO; M. Sabotino.

EMILIA ROMAGNA. PC: Travo!; Trebecco!. Abruzzo e Molise. AQ: Pratola Peligna.

48.136.0. 005.0 *Platydracus stercorarius* (Olivier, 1794)

CATEGORIA COROLOGICA. Turanico-europeo.

GEONEMIA ITALIANA. Italia continentale (183).

ECOLOGIA. Eurizonale (0-2000 m), praticolo, xerofilo.

NOTE. La forma nominale di tale specie è presente solo in alcune parti della regione alpina, più di frequente in prossimità dello spartiacque, mentre in tutto il resto del paese vive la ssp. *fuscofemoratus* (G. Müller, 1923), caratterizzata dal colore nero (invece che rossiccio) dei femori. Nelle Alpi sono presenti anche esemplari che possono essere considerati forme di transizione fra le due razze.

PIEMONTE E VAL D'AOSTA. TO: dint. Torino; Ceres; Casana Alta!; V. Argentiera (Sauze di Cesana)!; Bardonecchia; Sauze d'Oulx; Ceresole Reale; Pian della Mussa (Balme); Andrate; Brosso; Borgofranco d'Ivrea; Lombardore; AL: Tortona; Voltaggio; CN: Terme di Valdieri; S. Giacomo Entracque; Palanfrè; Certosa Pesio; V. Germanasca; Colle della Maddalena; Crissolo; NO: Macugnaga; L. Antillone (V. Formazza); P.so S. Giacomo; VC: Biella!; Oropa; L. della Vecchia (Oropa); Alta V. Cervo; V. Chiobbia (V. Cervo); Tavigliano; V. Sessera; M. Barone; Varallo; Alagna; AO: Gressoney la Trinité; L. Gabiet (Gressoney); Breuil; Fiery (Ayas); Champoluc; Etroubles!; V. di Rhemes; V. Cogne; La Thuile!; Courmayeur; V. Ferret.

LIGURIA GE: Genova; Sant. Vittoria; Fontanegli; Savignone; Torriglia; S. Stefano d'Aveto; IM: Borgomaro; Triora; SP: Ameglia; SV: Varazze; M. Beigua.

LOMBARDIA. MI: Milano; Monza; BG: Solto Collina; BS: Brescia!; Gussago; M. Orfano (Rovato)!; Paitone; Collio; Pisogne; Altopiano di Cariadeghe (Serle); CO: Cascina Bracchi (Casatenovo); Caglio!; Calco; CR: Cremona!; PV: Rocca dei Giorgi!; Voghera!; Menconico; VA: Cavagnano; Cadegliano; Vergiate; SO: Delebio; Tagliate (Cosio); Albaredo; V. Livrio; Lanzada; Chiareggio; Alpe Campescio (Lanzada); S. Caterina Valfurva; V. Codera (Piazzo; Revelaso).

TRENTINO ALTO ADIGE. BZ: Auer (Ora) (1); Kollfuschg (Colfosco); Jenesien (S. Genesio); Kematen am Ritten (Caminata di Renon) (1); Sarnthein (Sarentino)!; Aferer Tal (V. di Eores); Grimm Joch (P.so di Oclini) (1); Brixen (Bressanone) (1); Sand in Taufers (Campo Tures); Niederdorf (Villabassa); Toblach (Dobbiaco); Spronsertal, Meran (V. di Sopranes, Merano) (1); Zirogalm, Brenner (Malga Zirago, Bren-

nero) (1); St. Jakob Pfitschertal (S. Giacomo di Vizze); Matschertal (V. di Mazia); Sulden (Solda); Trafoi (1); St. Ulrich (Ortisei); TN: V. Genova; Madonna di Campiglio; Concei!; V. Ampola; Ruffrè; Cavareno; Malga Mare (Pejo); Termenago (V. di Sole); L. di Caldonazzo (Inghiaie, S. Cristoforo); Laghestel (Pinè); Levico; Strigno; Sagron; L. Lagorai; Moena; P.so di Lavazè (1).

VENETO. VE: Mestre; BL: Belluno; Cansiglio; S. Donato (Lamon); Cortina; PD: Piazzola sul Brenta; TV: Treviso; VI: Casotto; Valdagno; VR: Verona (Bertacchina; Cancello; Avesa); Montorio; Domegliara; Grezzana; Negrar; Villafranca; Cima Telegrafo (M. Baldo); Malcesine; Selva di Progno.

FRIULI VENEZIA GIULIA. TS: Trieste; Sistiana; PN: Casarsa; UD: Premariacco; Paularo!; Piano d'Arta; Tarvisio; L. di Cavazzo; M. Musi.

EMILIA ROMAGNA. BO: Bologna; Marzabotto; L. di Brasimone; FO: Premilcuore!; Campigna; La Lama; MO: Spilamberto; PC: Sarmato!; Borgonovo Val Tidone!; Travo!; RA: Pineta di Classe.

TOSCANA. FI: Firenze; M. Senario; Marradi; M. Faggiola; Vallombrosa; AR: Alpe della Luna; Camaldoli; GR: P.ta Alberese; PT: Piastre.

MARCHE E UMBRIA. MC: Bolognola; M. Sibillini (sorgenti Fergno; Pian Perduto); Porto Recanati; PS: Pesaro; M. Nerone!; Urbino!; PG: Sigillo; Lippiano (Città di Castello); Valtopina.

LAZIO. RM: Roma; Acilia; Maccarese; Marino; Albano; Palombara Sabina; Roccagiovine; Riofreddo; Bracciano; FR: M. Scalambra; LT: Cisterna; Monte S. Biagio; RI: M. Terminillo.

ABRUZZO E MOLISE. AQ: Campo Imperatore; M. Greco; M. Sirente; M. Morrone; Pescasseroli; Castel di Sangro; M. Godi; Campo di Giove; Maiella (Fonte Romana; P.so S. Leonardo; Blockhaus); Ovindoli; V. Fondillo; Cerchio; CB: M. Miletto; Campitello Matese.

CALABRIA E BASILICATA. RC: Serra S. Bruno; PZ: Pollino.

48.137.0. 001.0 *Dinothenarus flavocephalus* (Goeze, 1777)

CATEGORIA COROLOGICA. S-europeo.

GEONEMIA ITALIANA. Italia continentale (a sud del Po), Sicilia (49).

ECOLOGIA. Eurizonale, saprofilo (soprattutto coprofilo); preda Scarabeidi, soprattutto del gen. *Onthophagus*.

NOTE. E possibile, come affermano Luigioni e Porta, che la specie sia presente anche in Sardegna, isola di cui non ho però mai visto esemplari.

PIEMONTE. AL: Ovada.

LIGURIA. GE: Genova; Marassi; Sturla; M. Fasce; M. Aiona (Rezzoaglio); Portofino; IM: S. Remo; SV: Savona; M. S. Giorgio; M. Beigua; Alpicella.

FRIULI VENEZIA GIULIA. TS: Trieste.

EMILIA ROMAGNA BO: Castel S. Pietro!; FO: Collinello.

TOSCANA. FI: Firenze; M. Morello; Fiesole; S. Margherita; GR: Alberese; LU: Bagni di Lucca.

MARCHE E UMBRIA. MC: Cingoli; PG: Lippiano (Città di Castello).

LAZIO. RM: Roma (Villa Borghese; Acquacetosa); Acilia; Lunghezza; Grottaferrata; Tuscolo (Colli Albani); M. Cavo (Colli Albani); Albano; Marino; Tivoli; Sasso (staz. Furbara); Manziana; Palombara Sabina; LT: Formia; Bassiano; M. Lepini (M. Lupone; M. Semprevisa); VT: Bassano (Sutri); S. Martino al Cimino.

ABRUZZO E MOLISE. CH: Rif. Pomilio (Maiella).

CAMPANIA. SA: Vallo della Lucania.

PUGLIA. BA: Mellitto (Altamura).

CALABRIA E BASILICATA. CZ: Sambiase; PZ: M. Vulture; Viggianello.

SICILIA PA: Ficuzza; CT: Etna; ME: Fiumara di Tono; M. Antennamare; M. Soro; Mistretta; Cesarò; TP: S. Ninfa.

48.137.0. 002.0 *Dinothenarus pubescens* (De Geer, 1774)

CATEGORIA COROLOGICA. Sibirico-europeo.

GEONEMIA ITALIANA. Italia continentale (60).

ECOLOGIA. eurizonale (0-2000 m), saprofilo (soprattutto coprofilo); preda Scarabeidi, soprattutto del gen. *Aphodius*.

NOTE. Pur non avendone mai visto esemplari, ritengo possibile la presenza di questa specie in Sardegna; essa, infatti, oltre ad essere citata per quest'isola sia da alcuni Autori, è presente con certezza in Corsica (Cervione).

PIEMONTE E VAL D'AOSTA. TO: dint. Torino; Usseaux; Fenestrelle; AL: Tortona; Voltaggio; AO: Valtournenche; Courmayeur; V. di Rhemes.

LIGURIA. GE: Fontanigorda; S. Stefano d'Aveto; SV: Cairo Montenotte.

LOMBARDIA. MI: Milano; Sesto S. Giovanni; BS: Cislano (Marone); SO: Poira!; Civo; Bormio; Pradaccio (V. Zebrù).

TRENTINO ALTO ADIGE. BZ: Sigmundskron, Bozen (Castel Firmiano, Bolzano) (1); Ritten (Renon) (1); Sarntal (V. Sarentina) (1); Deutschnofen (Nova Ponente) (1); Gampen Joch (P.so di Palade) (1); Brixen (Bressanone) (1); Sterzing (Vipiteno) (1); Sand in Taufers (Campo Tures); Salurn (Salorno); Wolkenstein (S. Cristina V. Gardena); Schnalstal (V. Senales)!; Laas (Lasa)!; TN: Lodrone; Avio; S. Michele all'Adige; Levico; Sagron; Moena; M. Roen.

VENETO. BL: Cortina; Nebbiù; Vigo di Cadore; Falcade; VI: Casotto; VR: Montecchio; S. Pancrazio; Cancello; Monteforte d'Alpone; M. Baldo.

FRIULI VENEZIA GIULIA. TS: Trieste; Muggia; Sistiana; UD: V. Musi.

EMILIA ROMAGNA. BO: Bologna; FO: Campigna; Rif. La Burraia (P.so La Calla).

TOSCANA. FI Consuma; Vallombrosa.

MARCHE E UMBRIA. AP: M. Sibilla; Montemonaco; PG: Forca Canapine.

LAZIO. RM: ALBANO; M. AUTORE; RI: Vallemare.

ABRUZZO E MOLISE. AQ: Coppito; M. Portella (Gran Sasso); M. Calvo; Forca d'Acero; TE: M. Gorzano.

CALABRIA E BASILICATA. CZ: M. Gariglione; CS: Camigliatello.

48.138.0. 001.0 *Parabemus fossor* (Scopoli, 1773)

CATEGORIA COROLOGICA. Centroeuropeo.

GEONEMIA ITALIANA. Alpi, Appennino sett., Pollino (185).

ECOLOGIA. Da submontano ad alpino (400-2000 m), silvicolo, xerofilo, mirmecofago (preda formiche del gen. *Camponotus*).

NOTE. La citazione di Luigioni per la Calabria, che un tempo ritenevo erronea, mi è stata invece recentemente confermata; tuttavia Luigioni segnalava la specie della Sila, mentre possiedo dati certi solo per il Pollino.

PIEMONTE E VAL D'AOSTA. TO: Colle della Croce; Usseaux; Oulx; Cesana Alta!; V. Argentiera (Sauze di Cesana)!; Sestriere!; Moncenisio; Colle dell'Assietta; Colle delle Finestre; Fenestrelle; Laval (V. Troncea); Coazze; M. Musinè (Caselette); M. Lera (Givoletto); Noasca; Ceresole Reale; Malciaussià; Forno Alpi Graie; Colle della Chiarmetta (Viù); Ronco Canavese; Campiglia Soana; Prali; Andrate; AL: Caldirola!; Figino (Albera Lig.); CN: Palanfrè; Garessio; Valcasotto!; Col di Tenda; Bric Costa Rossa; S. Giacomo d'Entracque; Vallone Trinità (Entracque); Certosia di Pesio; Monviso; Crissolo; NO: Ar-

meno; M. Zeda; Premeno; Campello (V. Strona); Anzino!; Macugnaga; S. Domenico di Varzo; Varzo!; S. Maria Maggiore; V. Formazza; VC: Biella; Piedicavallo; Oropa!; Trivero; M. Marca; Bocc. di Sessera!; Bielmonte; M. Barone; Varallo; Breia; Campertogno; Rassa; Riva Valdobbia!; Alagna; Val Sermenza; Fobello; Cervatto; AO: Gaby!; Gressoney la Trinité; Brusson; Champoluc; Valtournenche; Ollomont; Courmayeur; V. Ferret; Cogne; Valnontey; Valsavarenche; La Thuile; Colle Picc. S. Bernardo;

LIGURIA. GE: M. Aiona (Rezzoaglio); M. Montarlone (Fontanigorda); M. Penna; M. Antola; IM: M. Saccarello; Mendatica; M. Bignone; SV: M. Beigua.

LOMBARDIA. BG: Gorno; Valpiana; Cornalba; Roncobello; Costa Serina; M. Sovere; Schilpario; P.so Presolana; BS: V. Saviore; Paghera (Ceto)!; Cecino; Cevo; Vezza d'Oglio; V. d'Avio (Temù); Zoanno; P.so Tonale; CO: Brunate; Campione; M. Generoso; M. S. Primo; Sormano!; Porcida (Gera Lario); M. Grigna Sett.; M. Grigna Mer.!; PV: P.so Giovà!; SO: Delebio; Roncaglia; V. Gerola (Gerola; Arzo; Bema; Rasura; Alpe Culino; Alpe Olano; Tagliate); Albaredo; V. Livrio; Bagni del Masino!; Alpe Campelli (Albosaggia); M. Vespolo; Ligari; Caiolo; L. Colina (Postalesio); Chiesa Valmalenco!; V. Scerscen (Lanzada); Chiareggio; Sondalo; V. Grosina!; V. Fontana; Arigna; Lovero; L. di Belviso; Isolaccia; Stelvio; V. Codera (Codera Alta; Piazzo); Pianazzo; L. Truzzo; Bodengo!; V. Forcola (Menarola)!; Borgonuovo (Piuro)!; VA: Ghirla; Campo dei Fiori; Orino; Rasa!; Boarezzo!.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Glaning (Cologna) (1); Oberbozen (Soprabolzano) (1); Ritten (Renon); Brixen (Bressanone) (1); Sand in Taufers (Campo Tures); Stein Pfitscher Tal (Sasso Val di Vizze); Matschertal (V. di Mazia); Maiern Ridnauntal (Masseria V. Ridanna)!; Sarntal (V. Sarentina); Plan (V. Gardena); St. Ulrich (Ortisei); Meran (Merano); Passeier (V. Passiria) (1); Prags (Braies); Altprags (Braies Vecchia) (1); Tils (Tiles); Gfrill (Tisens) (Caprile, Tesimo); Bruneck (Brunico); Weissenstein (Pietralba) (1); TN: M. Panarotta; M. Bondone; Cavareno; Ruffrè; Smarano; Andalo; Pejo; Pellizzano; V. di Genova; Madonna di Campiglio; Pinzolo; Carisolo; V. Ampola; Concei!; M. Rimà; Vallarsa; Baselga di Pinè; Le Grave (Civezzano); Echen (Folgaria); Cembra; Ziano di Fiemme (2); Vetriolo; Lavarone; M. Gronlait; Pasubio; Valfredda (Ala) (4); La Sega (Ala).

VENETO. BL: M. Pavione; M. Avena; Vigo di Cadore; P.so Mauria; Auronzo; Rocca Pietore; Caviola; Cansiglio; Pocol; Col Visentin; TV: M. Grappa; VI: Rotzo; M. Zebio (Altopiano di Asiago); VR: M. Baldo (Cavallo di Novezza; Rif. Novezzina; Bocca di Navene; S. Valentino); V. di Rivolto (Lessini); Giazza.

FRIULI VENEZIA GIULIA. TS: Aquilinia; PN: For. del Prescudin; UD: Forni di Sopra; Forni di Sotto; L. di Cavazzo; M. Musi; Piano d'Arta; Attimis; Paularo!; Tribil Inferiore; Pontebba; Valbruna; Savogna; M. Mataiur.

EMILIA ROMAGNA. BO: L. di Brasimone; FO: M. Falco; MO: M. Libro Aperto; M. Cimone; PC: Bivio S. Barbara (Coli)!.

TOSCANA. LU: M. Sumbra; Foce Mosceta (Stazzema); PT: Abetone; V. Sestaione.

CALABRIA E BASILICATA. PZ: Pollino (Cugno d'Acero; Santuario).

48.139.0. 001.0 *Staphylinus caesareus* Cederhjelm, 1798

CATEGORIA COROLOGICA. Europeo.

GEONEMIA ITALIANA. Italia sett. e cent. (153).

ECOLOGIA. Da submontano a subalpino (300-1800 m), praticolo.

NOTE. Porta cita la specie di tutta Italia, sicuramente per confusione con quella seguente. La segnalazione di Policoro (Angelini e Montemurro, 1984) mi sembra fortemente sospetta, avendo visto personalmente da quelle zone solo esemplari dell'affine *S. dimidiaticornis*, della cui presenza a Policoro non si fa invece menzione nel medesimo lavoro. Con-

trariamente a quanto riportato in molti testi, anche divulgativi, *S. caesareus* non è in alcun modo legato a sostanze in decomposizione, come d'altra parte nessuna specie di questo genere in Italia.

PIEMONTE E VAL D'AOSTA. TO: Torino; Pianezza; Bardonecchia; Laux; Fenestrelle; CN: Borgo S. Dalmazzo; Viozene; Garessio; Alta V. Grana; NO: Macugnaga; V. Cairasca; Antillone (V. Formazza); M. Mottarone; M. Zeda; VC: Tavagliano; Andorno; Oropa; Piode; Campertogno; Riva Valdobbia; Alagna; AO: Gressoney; Valtournenche; Fiernaz!; Brusson; Aymavilles; Ollomont; Courmayeur; Prè S. Didier; Entreves; Valgrisenche; Cogne; Valnontey;

LIGURIA GE; Genova; P.so del Turchino; P.so del Faiallo; M. Aiona (Rezzoaglio); IM: Cosio d'Arroscia; Nava; SV: M. Beigua.

LOMBARDIA. MI: Villasanta; BG: Bergamo; Clanezzo; S. Pellegrino; Carona; Schilpario; Ornica; Gorno; Clusone; BS: Brescia; Botticino; Barghe; Pisogne; Vezza d'Oglio; Ponte di Legno; Zoanno; P.so Tonale; CO: Como; Camerlata; Valmorea!; Montorfano; Ballabio Inf.; Ballabio Sup.; M. Resegone; Asso; Montalto (Montemezzo)!; SO: Arzo (Morbegno); Bagni del Masino; M. Vespolo; Chiesa Valmalenco; Primolo; Chiareggio; Aprica; Lovero; Sondalo; V. Grosina!; V. Fontana; M. Palabione; Isolaccia; Bormio; S. Nicolò Valf.; S. Caterina Valf.; M. Padrio; V. Codera; Borgonuovo (Piuro)!; VA: Campo dei Fiori; Gaggiolo.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano); Brixen (Bressanone) (1); Tils (Tiles); Bruneck (Brunico); Kematen Pfitschertal (Caminata V. di Vizze); Schluderns (Sluderno); Matschertal (V. di Mazie); St. Ulrich (Ortisei); Taufers im Münstertal (Tubre); Gossensass (Colle Isarco); Wolkenstein in G. (Selva Gardena); St. Christina in G. (S. Cristina Valgardena)!; Altprags (Braies Vecchia) (1); Niederdorf (Villabassa); Toblach (Dobbiaco); Sand in Taufers (Campo Tures); Kasern Ahrntal (Casere V. Aurina); TN: Trento; Ala; S. Michele all'Adige; Brentonico; Pellizzano; Fucine; Cavareno; Smarano; Lodrone; V. Ampola; V. Genova; Madonna di Campiglio; Lardaro; Cavalese; P.so Cereda; Levico; Sagron; Castelnuovo; Canazei; Moena; Cima Carega (Lessini).

VENETO. BL: Cortina; P.so Falzarego; Agordo; Laggio; Sappada; S. Stefano di Cadore; Auronzo; Lorenzago; Falcade; Vigo di Cadore; Rocca Pietore; Cansiglio; Longarone; V. Visdende; TV: Ponzano; M. Grappa; VI: Arsiero!; Rosà; M. Pasubio; M. Zebio; Fongara; Cesuna; Asiago; VR: Verona; Avesa; Giazza; Fumane; Campofontana; M. Tenda (Negrar); Roverè; Pian delle Fugazze; M. Baldo (M. Altissimo; Bocca di Navene; S. Valentino; La Colma).

FRIULI VENEZIA GIULIA. TS: Sistiana; GO: Isola Morosini; UD: Forni Avoltri; Ligosullo; Paularo; Piano d'Arta; Paluzza; Valbruna; V. Musi; Ravascletto; M. Mataiur; Tarvisio; Riofreddo; Cividale del Friuli.

EMILIA ROMAGNA. BO: L. di Brasimone; PC: Bivio S. Barbara (Coli)!; RA: Brisighella.

TOSCANA. FI: Marradi; Casaglia; AR: Alpe della Luna; LU: Foce Mosceta (Stazzema); PT: Cutigliano.

MARCHE E UMBRIA. MC: Camerino.

LAZIO. RM: Palombara Sabina.

ABRUZZO E MOLISE TE: Pietracamela.

48.139.0. 002.0 *Staphylinus dimidiaticornis* Gemminger, 1851

CATEGORIA COROLOGICA. Europeo.

GEONEMIA ITALIANA. Italia continentale, Sicilia (149).

ECOLOGIA. Da planiziale a subalpino (0-1800 m), praticolo.

NOTE. Luigioni e Porta citano la specie anche della Sardegna, ma non ho mai visto alcun ex di *Staphylinus* dell'isola; ne ho però visto un ex della Corsica (Cervione). Le ultime due specie trattate manifestano le stesse esigenze ecologiche e in molte località del Nord sono reperibili assieme nei medesimi biotopi; tuttavia *S. dimidiaticornis* sembra essere più xero-

resistente ed è infatti rinvenibile anche in pianura (seppur localizzato e raro), oltre ad essere, fra i due, l'unico presente in gran parte delle regioni centromeridionali.

PIEMONTE E VAL D'AOSTA. TO: Parco La Mandria (Venaria); Valprato Soana; Campiglia Soana; Ivrea; AL: Ovada; CN: Alta V. Po; Limone Piem.; V. Pesio; Garessio; Ponte Nava; NO: Castiglione!; Macugnaga; Malesco; Premia!; Baceno!; V. Cairasca; Fontaneto d'Agogna; Galliate; VC; Sagliano; Biella; Oropa; Scopello!; Campertogno; AO: Valtournenche; Fiernaz!.

LIGURIA. GE: Genova; Fontanegli; Molassana; Casella; M. Antola; IM: Nava; SP: Ameglia; Sarzana; SV: Bardineto.

LOMBARDIA. MI: Milano (Monluè); Segrate; Besana Brianza; BG: V. Brembana; P.so del Vivione; Schilpario; BS; Brescia; Cividate Camuno; Altopiano di Cariadeghe (Serle); Edolo; CO: Barzio; Lambrugo; Merone; Lanzo d'Intelvi; PV: Pavia; Ruino; M. Pietra Corva (Romagnese)!; SO: Sondrio (Città; Castellina; Castel Grumello); Cosio; Tagliate (Cosio); Morbegno; Talamona!; Filorera; V. di Mello; Colorina; Ardenno; Faedo; Triangia; Chiesa Valmalenco; Somaggia; Borgonuovo (Piuro)!; VA: Rasa!; Laveno.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Brixen (Bressanone) (1); Sterzing (Vipiteno) (1); Gossensass (Colle Isarco); St. Ulrich (Ortisei); Sand in Taufers (Campo Tures); TN: Pellizzano; S. Michele all'Adige; L. di Cei; Fucine; V. Genova; Loppio; Folgaria; L. Pudro (Vigalzano); Levico; Mezzano; Sagron.

VENETO. BL: Cortina; Vigo di Cadore; Agordo; Pecol (V. di Zoldo); C.ma Pramper (V. di Zoldo)!; Cansiglio; Feltre; Schievenin; PD: Piazzola sul Brenta; VI: Monteviale; Chiampo; Valdagno.

FRIULI VENEZIA GIULIA. GO: Monfalcone; Doberdò; PN: Campone; UD: Ligosullo; Forni di Sopra.

EMILIA ROMAGNA. MO: Palagano; PC: Ferriere; Cerignale; Trebecco!; Bivio S. Barbara (Coli)!; PR: Compiano!; RA: Ravenna; Pineta di S. Vitale.

TOSCANA. FI: Firenze; Campi Bisenzio; Marradi; Badia della Valle (Marradi); Vallombrosa; AR: Anghiari; Camaldoli; GR: Follonica; M. Amiata; LI: Livorno; S. Vincenzo!; PI: dint. Pisa; S. Rossore!; PT: Pistoia; Padule di Fucecchio.

MARCHE E UMBRIA. AN: Senigallia; MC: Macerata; PG: Perugia; S. Sebastiano (Foligno); Lippiano (Città di Castello); Perrano (Nocera).

LAZIO. RM: Roma (Tor di Quinto; Ponte Galeria; Prima Porta; Farnesina; Villa Ada); Acilia; Maccarese; Zagarolo; Rota (M. della Tolfa); Sasso (staz. Furbara); Nazzano; Percile; Palombara Sabina; LT: M. della Difesa (M. Lepini); RI: Poggio Mirteto.

ABRUZZO E MOLISE. AQ: Oricola; Pratola Peligna; V. del Vasto (Gran Sasso); Assergi; Roccaraso; Rocca di Cambio; Rocca di Mezzo; Pescasseroli; Castel di Sangro; Gioia dei Marsi; PE: Popoli; TE: Cima Lepri (M. della Laga); Tottea; CB: Bojano; Guardiaregia; IS: Montenero Valcocchiara.

PUGLIA. TA: Foce fiume Lato.

CAMPANIA. AV: Piano di Verteglia (M. Picentini).

CALABRIA E BASILICATA. CZ: Sambiase; CS: L. Arvo; PZ: M. Pollino; MT: Policoro!.

SICILIA. PA: Ficuzza; ME: Floresta; Biviere di Cesarò; Mistretta.

48.139.0. 003.0 *Staphylinus erythropterus* Linnaeus, 1758

CATEGORIA COROLOGICA. Sibirico-europeo.

GEONEMIA ITALIANA. Italia sett. (29).

ECOLOGIA. Da planiziale a montano (0-1500 m), silvicolo, igrofilo.

NOTE. In Italia si trovano sia la f. typ. che la ssp. *springeri* (G. Müller, 1923). Tuttavia, come dimostra bene la distribuzione geografica, credo non sia assolutamente possibile giu-

stificare la separazione a livello subspecifico di *springeri*. In numerose delle località sottoelencate convivono infatti esemplari della f. typ. e di detta ssp.; essa è, con tutta probabilità, solo un forma scura dominante degli ambienti bassi e palustri, in cui sono comunque presenti, in percentuale più o meno ridotta, anche esemplari tipici. Le citazioni per l'Appennino emiliano e il Lazio di Luigioni e Porta mi sembrano estremamente improbabili.

PIEMONTE E VAL D'AOSTA. TO: M. Lera, Madonna della Neve (Givoletto); V. Chiusella; CN: Palanfrè; Crissolo; VC: Oropa; Ghislarengo; AO: Aosta.

LOMBARDIA. MI: Bernate Ticino!; Zelo Buon Persico (F. Adda)!; CO: Valmorea!; Albate; Moirana (Oggiono); L. di Montorfano; Lanzo d'Intelvi; PV: S. Varese (Torre d'Isola); SO: Pian della Selvetta; VA: Arcisate; Gavirate; L. di Monate!.

TRENTINO ALTO ADIGE. TN: Pellizzano; Loppio; Levico; Lases; Le Grave (Civezzano); L. Pudro (Vigalzano); S. Cristoforo (Caldonazzo); BZ: Brixen (Bressanone) (1); Kalterer See (L. di Caldaro); Meran (Merano); Vintl (Vandoies).

VENETO. BL: Vincheto di Cellarda (Feltre); Lorenzago.

48.140.0. 003.0 *Ocypus* (*Ocypus*) *alpestris* (Erichson, 1839-40)

CATEGORIA COROLOGICA. Alpino.

GEONEMIA ITALIANA. Alpi orientali (54).

ECOLOGIA. Da montano ad alpino (1000-2500 m), praticolo.

NOTE. La distribuzione di questa specie e di quelle affini (*brevipennis*, *chevrolati*, *megalocephalus* e *brunnipes*) è stata recentemente chiarita per il nostro paese (Pilon, 1995). I dati qui riportati sono in gran parte quelli già pubblicati, con alcune aggiunte e modifiche dovute alla verifica di località nuove.

LOMBARDIA. BS: M. Campione; Cima Tombea (Valvestino).

TRENTINO ALTO ADIGE. BZ: M. Plose; Grödnertal (V. Gardena); Croci di Lazfons!; Rosengarten (Catinaccio) (1); Niederdorf (Villabassa); Toblach (Dobbiaco); Sexten (Sesto); Fischleintal (V. Fiscalina); TN: V. Genova; M. Paganella; M. Bondone; M. Carega; Rifugio Papa (Pasubio)!; Sagron; Rif. Cant del Gal (Fiera di Prim.); Vigo di Fassa; V. del Vaiolet (V. di Fassa); Lagorai (P.so Portella; P.so Manghen!; L. Erdemolo!); P.so S. Pellegrino; Cimon Rava (Valsugana); P.so Rolle; Capanna Segantini.

VENETO. BL: M. Pavione; Cansiglio (V. di Piera; V. Seraie); M. Cavallo!; L. Coldai (Alleghe); Cortina; P.so Giau; P.so Falzarego; P.so Pordoi; Vigo di Cadore; Pecol (V. di Zoldo); Calalzo; M. Cridola; Cima Sappada; M. Peralba; TV: M. Grappa!; VI: Lessini (Rif. Scalorbi; P.so di Campogrosso!); Cima Dodici!; M. Zebio; Asiago; VR: M. Baldo (Cima Posta; Cima Telegrafo; Cima Longino!; Valdritta; M. Altissimo di Nago); Lessini (Rif. Revolto; Vallone S. Giorgio); Boscochiesanuova; Giazza; Campofontana.

FRIULI VENEZIA GIULIA. PN: Foresta del Prescudin; Forcella Palantina (M. Cavallo); Claut; M. Raut; UD: Collina (Wolajersee; Rif. Marinelli!); Ligosullo; Paularo; M. Mangart; M. Canin; Alto Canale di Dogna.

48.140.0. 005.0 *Ocypus* (*Ocypus*) *brevipennis* (Heer, 1838-42)

CATEGORIA COROLOGICA. Alpino.

GEONEMIA ITALIANA. Alpi cento-orientali (43).

ECOLOGIA. Da montano ad alpino (1200-2500 m), praticolo.

NOTE. L'areale di questa specie sembra coincidere in buona parte con quello di *O. alpestris*, ma con una gravitazione leggermente più settentrionale. Essa sovrappone in parte il proprio areale a quello delle due specie "gemelle": ad est convive sicuramente con *O.*

alpestris nella regione Dolomitica (P.so Falzarego), sul M. Cavallo e probabilmente in tutta la Carnia (Collina; M. Raut); ad ovest convive con *O. chevrolati* nelle Alpi Orobie, ove peraltro sembrano entrambe rare e localizzate; sono comunque reperibili nelle medesime praterie al Passo di S. Simone, in alta Val Brembana.

LOMBARDIA. BG: P.so di S. Simone!; M. Arera; M. Secco; BS: P.so del Maniva; SO: P.so Spluga; Montespluga!; V. Fraele; S. Caterina Valf..

TRENTINO ALTO ADIGE. BZ: Ritten (Renon); Trafoi; Rif. Borletti (Ortles)!; Stein (Sasso); Passeirtal (V. Passiria); Schlüsseljoch, Brenner (Colle della Chiave, Brennero) (1); Pfitscher Joch (P.so di Vizze); St. Magdalena Gsies (S. Maddalena Casies)!; Kasern Ahrntal (Casere V. Aurina); Niederdorf (Villabassa); Antholzersee (L. di Anterselva); M. Plose; Peitler Kofel (Sass de Putia) (1); Kronplatz (Plan de Corones) (1); Grubbachspitze (M. Gruppo) (1); Wolkenstein (Selva Gardena); Grödner Joch (P.so Gardena); Rosengarten (Catinaccio) (1); Schluderbach (Carbonin); Sand in Taufers (Campo Tures); Rain in Taufers (Riva di Tures); Karersee (Carezza); Fischleintal (V. Fiscalina); TN: Rif. Panarotta (Vetriolo); P.so Lavazè.

VENETO. BL: P.so Falzarego; Vigo di Cadore; Malga Ciapela; VI: Fongara.

FRIULI VENEZIA GIULIA. PN: M. Cavallo; M. Raut; UD: Sella Nevea; Altop. del Montasio; M. Canin; Paularo; Forni di Sopra; Collina; M. Coglians.

48.140.0. 006.0 *Ocypus* (*Ocypus*) *brunnipes* (Fabricius, 1781)

CATEGORIA COROLOGICA. Centroeuropeo (introdotto in Nord America).

GEONEMIA ITALIANA. Italia sett. e cent. (79).

ECOLOGIA. Da planiziale a montano (0-1400 m), silviripicolo.

NOTE. Questa specie, igrofila ed a gravitazione piuttosto settentrionale, presenta alcune interessanti stazioni montane isolate (relitti glaciali?), nella regione appenninica, in Toscana e Abruzzo. In tutto il nostro paese si trova la ssp. *alpicola* Er., razza debolmente caratterizzata ma costante. *O. brunnipes* è noto anche da resti subfossili dei dintorni di Verona, datati attorno a 19.000 anni fa (Foddai e Minelli, 1994).

PIEMONTE E VAL D'AOSTA. TO: Torino (Sassi); Leinì; AL: Tortona; Cassine sul Bormida; CN: dint. Cuneo; Borgo S. Dalmazzo; NO: Fontaneto d'Agogna; Lesa; VC: Albano Vercellese; Crescentino; AO: Pré S. Didier; Entreves; La Thuile.

LOMBARDIA. MI: Milano; Buccinasco; Monza; Besana Brianza; Abbiategrasso; Bernate Ticino!; Robecco s. N.!; Turbigo; Zelo Buon Persico!; Paullo; BG: Schilpario; BS: Pisogne; CO: Como; Albate; Valmorea!; Pusiano; L. di Sartirana (Merate); Pescate; Colico; Piano di Spagna (Gera L.); CR: Cremona!; Rivolta d'Adda; MN: Cerese; Castellaro Lagusello; PV: Pavia (Bosco G. Negri)!; S. Varese (Torre d'Isola); Bereguardo!; Villareale (Cassolnovo); SO: Cermeledo (Morbegno); Castellina; Sassella; Faedo; S. Giacomo di Teglio!; VA: L. di Varese; L. di Comabbio!; Viggiù!; Vizzola Ticino.

TRENTINO ALTO ADIGE. BZ: Sigmundskron (Castel Firmiano) (1); Meran (Merano) (1); Lichtenberg (Montechiaro)!; TN: Avio; Loppio; Borghetto; Tuenno; L. di Idro; Cembra.

VENETO. BL: Feltre; Foen; Villabruna; RO: foce Adige!; TV: Follina; VR: S. Giovanni Lupatoto; Oppeano; Mazzantica; Vallese; Bovolone; Sona; Custoza; S. Floriano; Pellegrina (Erbè).

FRIULI VENEZIA GIULIA. GO: Monfalcone; Doberdò; UD: Carnia Piani; Zuglio.

EMILIA ROMAGNA. FE: Filo; Bosco Mesola; FO: Cesena; PC: Sarmato!; PR: Parco Fluviale Stirone!; RA: Pineta di S. Vitale.

TOSCANA. AR: P.so La Calla.

ABRUZZO E MOLISE. AQ: Gran Sasso; TE: M. Gorzano.

48.140.0. 007.0 *Ocypus* (*Ocypus*) *chevrolati* (Baudi, 1848)

CATEGORIA COROLOGICA. Centroeuropeo.

GEONEMIA ITALIANA. Alpi centro-occidentali (35).

ECOLOGIA. Da montano ad alpino (900-2500 m), praticolo e silvicolo.

NOTE. E molto difficile ricostruire in modo preciso la distribuzione di questa specie sia in Italia che nel resto del suo areale (che si trova prevalentemente in Francia). Fino ad ora si riteneva che esistessero due nuclei principali, disgiunti, situati nelle Alpi piemontesi e nel Trentino occidentale, ma, grazie a ricerche recenti, fra queste due regioni si sono trovate diverse stazioni che sembrerebbero portare ad un congiungimento completo del suo areale nel versante sud delle Alpi. Di sicuro, comunque, questo Stafilinide sembra essere comune e facilmente catturabile solo nelle Alpi occidentali e nel Trentino occidentale. Si tratta di una specie notevolmente variabile sia nella morfologia esterna che in quella dell'edago e di cui sono state descritte diverse ssp., di valore discutibile, tutte estranee alla nostra fauna.

PIEMONTE E VAL D'AOSTA. TO: Meana; M. Albergian; Colle dell'Assietta; Colle delle Finestre; Fenestrelle; M. Sises (Sestriere); Moncenisio; L. Malciaussià!; Balme; Pian della Mussa; Mondrone; Ceresole; Colle di Santanel (V. Soana); Campiglia Soana; CN: Crissolo; Monviso; S. Giacomo (Entracque); Colle del Mulo; Colle della Maddalena!; P.so Gardetta (Acceglio); Colle di Valcavera; Col Puriac!; Vallone Maladecia!; Sambuco; Rocca dell'Abisso; Certosa Pesio; M. Marguareis; Colla di Casotto; NO: Macugnaga; VC: Varallo; Alagna; Oropa.

LIGURIA. IM: Mendatica; M. Monega; Bosco di Rezzo; M. Saccarello.

LOMBARDIA. BG: P.so di S. Simone!; M. Vigna Vaga; CO: Rif. Monza (Grigna); Esino Lario; SO: Alpe Culino (V. Gerola)!; VA: Campo dei Fiori!.

TRENTINO ALTO ADIGE. TN: Pieve di Ledro; Madonna di Campiglio; M. Carè Alto; Rif. Bedole (V. Genova); L. di Tovel; Smarano.

48.140.0. 014.0 *Ocypus* (*Ocypus*) *italicus* (Aragona, 1830)

CATEGORIA COROLOGICA. Appenninico.

GEONEMIA ITALIANA. Alpi Marittime, Appennini (175).

ECOLOGIA. Da submontano ad alpino (200-2200 m), silvicolo.

NOTE. Mentre nell'Italia settentrionale la specie appare uniforme (salvo le normali differenze in taglia e cromatismo dovute all'altitudine), nell'Appennino centro-meridionale la situazione diventa assai ingarbugliata, essendovi presenti tre sottospecie (o presunte tali), oltre alla forma nominale. Secondo le descrizioni e i lavori successivi le tre razze (distinte esclusivamente in base a caratteri cromatici di elitre, appendici e pubescenza del corpo) dovrebbero avere la seguente distribuzione: ssp. *mirtensis* (G. Müller, 1943): Umbria meridionale; ssp. *garganicus* (Fiori, 1894): Gargano e Campania; ssp. *silensis* (Fiori, 1894): Calabria. In realtà tutta la regione appenninica fra il Molise e il massiccio del Pollino è un complesso mosaico in cui la ssp. *garganicus*, la ssp. *silensis*, la forma nominale e forme di transizione tra queste vivono in stretto contatto o, addirittura, convivono nella medesima foresta, come accertato per diverse località dell'Appennino Campano e Lucano (M. Vulture; M. Alburni; M. Cervaro; M. Picentini). Inoltre esemplari melanici, in tutto simili alla ssp. *silensis*, sono occasionalmente presenti anche molto più a nord, in Abruzzo (M. Greco), nel Lazio (Carbognano) e addirittura in Romagna (Premilcuore). Appare quindi ovvio che, per la definizione stessa di sottospecie, non è possibile considerare a livello sottospecifico popolazioni che sono non solo simpatriche ma addirittura sintopiche; è possibile al più parlare di

forme o varietà (tenendo conto del valore, scarso, che questi termini hanno nella moderna sistematica), anche se esse in alcune aree raggiungono una frequenza del 100%. A questa complessa situazione concorrono certamente cause sia genetiche che ambientali, che sarebbe interessante approfondire con una maggior quantità di dati geonemici e con esperimenti di allevamento.

PIEMONTE VAL D'AOSTA. AL: Caldirola!; CN: Limone Piem.; Bric Costa Rossa; Col di Tenda; Palanfrè; Rocca dell'Abisso; Certosa di Pesio; Alta V. Tanaro; M. Mongioie.

LIGURIA. GE: Ruta; Rapallo; M. Antola; M. Penna; M. Montarlone (Fontanigorda); M. Aiona (Rezzoaglio); Crocefieschi; Vobbia!; IM: M. Saccarello!; P.so Tanarello; Nava; Mendatica; SV: M. Beigua; Col di Melogno; Cairo Montenotte!.

LOMBARDIA. PV: M. Lesima; M. Penice; M. Pietra Corva (Romagnese)!; dint. Menconico!; P.so Scaparina (V. Staffora)!; P.so Giovà!.

EMILIA ROMAGNA. BO: S. Luca (Bologna); Gaibola!; Corno alle Scale; L. di Brasimone; Madonna dell'Acero; FO: Tredozio; Premilcuore!; Campigna; Balze; MO: Sestola; Pratignano!; Pian del Falco; L. della Ninfa; L. Santo Mod.; M. Cimone; M. Libro Aperto; L. Scaffaiolo; Montecreto; Pievepelago; Piandelagotti; Montese; PC: Bivio S. Barbara (Coli)!; PR: Rigoso; RE: Alpe di Succiso.

TOSCANA. FI: dint. Firenze; Fiesole; M. Senario; Ronta; Colla di Casaglia; Marradi; Badia della Valle (Marradi); M. Falterona!; Vallombrosa; AR: Arezzo; Alpe della Luna; Sintigliano (Pieve S. Stefano); Montegonzi!; Laterina; La Verna; Camaldoli; GR: Arcidosso; M. Amiata; LU: Arni; M. Forato (Apuane); Foce Cardeto (Apuane); S. Pellegrino in Alpe; Fornovolasco!; PT: Boscolungo; Abetone; Maresca.

MARCHE E UMBRIA. AN: Genga; AP: Colle S. Marco!; M. Sibillini (L. di Pilato; sorgenti F. Tenna); M. Piselli!; MC: Bolognola; Sasso Tetto; Sarnano; Castelsantangelo sul Nera; M. Lieto; S. Ginesio; Sefro; PS: M. Nerone!; M. Catria; Cagli; Conv. Beato Sante!; PG: Perugia; S. Giustino; Lippiano (Città di Castello); Vescia; Spoleto; M. Cucco; P.so Cornello; TR: Polino.

LAZIO. RM: Cerveteri; Roccagiovine; Riofreddo; Percile; Mandela; Saracinesco; M. Cavo; Marino; Velletri; Olevano Romano; M. Autore; FR: Filettino; M. Scalambra; Serra S. Antonio; M. Viglio; FR: Paliano; Pian della Croce (Supino); LT: Cisterna; dint. Norma; M. Lepini (Cori, loc. Fontana; Camporosello; M. Semprevisa; V. della Fata; M. della Difesa); Monte S. Biagio; M. Aurunci (M. Faggeto; Piana di S. Onofrio); Quarto Freddo (Circeo); RI: Terminillo; Pian di Rosce (Terminillo); Vallonina; Pizzo di Sevo (M. della Laga); L. di Duchessa; Orvinio; Poggio Mirteto; Montasola; Fonte Cerro (M. Sabini); M. Pizzuto; VT: M. Cimino; Oriolo Romano; Carbognano; Bagnoregio.

ABRUZZO E MOLISE. AQ: M. Palombo; M. Tranquillo; Alfedena; La Camosciara (M. della Meta); Roccaraso!; Rif. Aremogna; M. Greco!; Campo Imperatore; S. Egidio; M. La Meta; Pescocostanzo; P.so Godi (Scanno); Forca d'Acero; M. Portella; M. Sirente; Pescasseroli; M. Palombo; M. Marsicano; M. Morrone; Maiella (P.so S. Leonardo; M. Amaro; rif. Pomilio; M. Maielletta; Blockhaus); Campo di Giove; CH: stazione di Palena; Palena; Fara S. Martino; Valico Forchette; PE: Vado di Sole; V. Voltigno (Gran Sasso); TE: Prati di Tivo!; Pietracamela; CB: Campitello Matese; M. Miletto; M. La Gallinola; Sella del Perrone; IS: Roccamandolfi; Agnone; S. Pietro Avellana.

PUGLIA. FG: Foresta Umbra (Gargano); S. Marco in Lamis!.

CAMPANIA. AV: Acqua Vene (Pietrastornina); Campo Maggiore (Mercogliano); Piano Laceno; M. Cervialto; BN: M. Taburno; P.so S. Crocella; CE: Gallo Matese; SA: M. Sacro; S. Biase (Ceraso); M. Alburno; Bosco Centaurino (Sanza); Piaggine; M. Cervati.

CALABRIA E BASILICATA. CZ: M. Gariglione; L. Ampollino; CS: Schiena di Rossale (Saracena); L. dei Due Uomini (Fagnano Castello); Fago del Soldato; M. Botte Donato; L. Arvo; Silvana Mansio; Camigliatello; S. Pietro Guarano; Grisolia; Paola (catena costiera); Serra Stella; M. Altare; RC: Gambarie; Cippo Garibaldi (Gambarie); Montalto; Molochio; S. Giorgio Morgeto; PZ: M. Cervaro; M. Vulture;

Marsico Vetere; M. Sirino; Lagonegro; Viggianello!; Pollino (Serra del Prete; Colle dell'Impiso; Duglia; Piani del Pollino; Piano Ruggio; L. dell'Erba; Santuario; Cugno dell'Acero); MT: Accettura!; Bosco Pantano (Policoro) (3).

48.140.0. 015.0 *Ocypus* (*Ocypus*) *megalocephalus* (Nordman, 1837)
(= *megacephalus* Auct.)

CATEGORIA COROLOGICA. Alpino.

GEONEMIA ITALIANA. Alpi centro-orientali (58).

ECOLOGIA. Da montano a subalpino (500-2000 m), silvicolo.

NOTE. Secondo Luigioni, Porta e altri Autori seguenti questa entità si trova solo nelle Alpi orientali (Trentino), mentre essa è diffusa e comune anche nelle Orobie, fino alle sponde orientali del Lago di Como.

LOMBARDIA. BG: Valcava; Colzate; Villa d'Ogna; Gazzaniga; Gandellino; Valpiana; Oltre il Colle; Oneta!; Conca Alben; M. Arera; Foppolo; P.so S. Simone; Ponte dell'Acqua (Mezzoldo); Cà S. Marco; Schilpario; P.so Manina; Monasterolo; Parzanica; BS: P.so del Maniva; CO: dint. Colico; Primaluna; Rif. Brioschi (Grigna Sett.)!; Rif. Cainallo (Esino); Esino Lario; Ballabio Inf.; M. Resegone; SO: V. Livrio (La Foppa; Sasso Chiaro).

TRENTINO ALTO ADIGE. TN: Pieve di Ledro; V. Ampola; Concei!; Vajo delle Cisterne (Ala); M. Carega; Rif. Papa (Pasubio)!; dint. Pergine; M. Gronlait; M. Fravort; Folgaria; P.so di Cereda; Sagron; Rif. Cant del Gal (Fiera di Prim.); P.so Manghen!; Pieve Tesino; P.so Rolle.

VENETO. BL: Cima di Campo (Arsiè)!; Auronzo; Alleghe; Caprile; Malga Ciapela; Falcade; Forcelle Aurine (Gosaldo); Pecol (V. di Zoldo); P.so Duran; P.so Staulanza; Cortina; Cima Sappada; Cansiglio; VI: M. Grappa; Lessini (Rif. Scalorbi; P.so di Campogrosso!); Asiago; M. Zebio; M. Ortigara; VR: Giazza; Lessini (Rif. Revolto; Vallone Malera; M. Tomba; Bocca Gaibana).

FRIULI VENEZIA GIULIA. PN: M. Cavallo; Col Nudo (Cimolais)!; M. Raut; UD: Paularo; Zuglio; Tarcento; Riofreddo!; Pierabec!.

48.140.0. 018.0 *Ocypus* (*Ocypus*) *nero* (Falderman, 1835)
(= *similis* Fabricius, 1792 nec Herbst, 1784)

CATEGORIA COROLOGICA. Europeo (introdotto in Nord America).

GEONEMIA ITALIANA. Italia continentale (221).

ECOLOGIA. Da planiziale a montano (0-1600 m), euriecio.

NOTE. In Italia si trova solo la ssp. nominale, con ali più corte delle elitre; non ho mai visto esemplari delle varietà *grigiensis* (Reitter, 1917), che dovrebbe trovarsi sui Lessini. Ho visto invece degli esemplari a zampe rosse (var. *ochropus* G. Müller, 1950) di alcune località di Lazio, Puglia e Campania.

PIEMONTE E VAL D'AOSTA. TO: Torino; Parco La Mandria (Venaria); Castiglione Torinese; Pianezza; Caselette; Meana; Sestriere; Monginevro; V. Chisone; Procaria; AL: Tortona; Voltaggio; NO: Fontaneto d'Agogna; Bracchio (Mergozzo)!; VC: Albano Vercellese; Greggio; Biella!; Oropa.

LIGURIA. Genova (Righi); M. Fasce; Busalla; Casella; S. Fruttuoso.

LOMBARDIA MI: Milano; Segrate; Monza; Limbiate; Ceriano Laghetto!; Cassano d'Adda; Zelo Buon Persico!; Vigarolo; BG: Celana!; Torre Pallavicina!; Valcava; Piario; BS: Capodiponte; Altopiano di Cariadeghe (Serle); M. Selvapiana; Borno; M. Orfano (Rovato)!; Coccaglio; CO: Cascina Bracchi (Casatenovo); Merate!; Canzo; M. Resegone; Montalto (Montemezzo); CR: Cremona!; MN: Bosco Fontana (Marmirolo); Solferino; PV: Pavia!; Villareale (Cassolnovo); Pometo!; Canevino!; Rocca dè Giorgi!; Pietragavina!; VA: Rasa!; Induno Olona; Cunardo.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Sigmundskron (Castel Firmiano) (1); Brixen (Bressanone) (1); Bad Ratzes (Bagni di Razzes) (1); Kreuzjoch (Giogo della Croce) (1); TN: Avio; Pomarolo; Nomi; Loppio; Lodrone; Vigalzano; S. Cristoforo (L. Caldonazzo); Caldonazzo; Levico; M. Agaro.

VENETO. VE: Punta Sabbioni; Marcon; BL: Feltre; Nevegal!; Cansiglio; P.so Giau; Vigo di Cadore; Falcade; V. di Zoldo; L. Coldai (Alleghe); M. Cavallo!; PD: Padova; Abano; Teolo; Battaglia Terme; Pozzonovo; Piazzola sul Brenta; TV: Treviso; Ponzano; Lovadina; Montello; Follina; M. Grappa; VI: Valdagno; Monteviale; Barbarano; Asiago; VR: Verona; Avesa!; Cancello; Cerea; Sona; Cà d'Oppi (Oppeano); Albaredo d'Adige; Grezzana; Montecchio; Monteforte d'Alpone; Rivoli; Roverè; Giazza; Valdiporro; P.so Fittanze; Torri Benaco.

FRIULI VENEZIA GIULIA. TS: Trieste; Banne; Sistiana; Duino; Slivia; GO: S. Martino del Carso; Doberdò; PN: M. Cavallo; For. del Prescudin; Polcenigo; M. Raut; Clauzetto!; M. Ciaurlec!; UD: Attimis; Carnia Piani; Peonis; Collina; Ampezzo; Arta Terme; Paularo; Paluzza; Valbruna; Musi!; M. Chiampon; Riofreddo!; M. Mataiur.

EMILIA ROMAGNA. BO: Bologna; Anzola!; L. di Brasimone; FE: Ferrara; FO: Forlì; Tredozio; Rimini; PC: Piacenza; Travo!; Sarmato!; Coli!; S. Protaso (Fiorenzuola); RA: Ravenna; Brisighella; RE: Castelnuovo nè Monti.

TOSCANA. FI: Firenze; M. Morello; Sesto Fiorentino; Fucecchio; Marradi; Badia della Valle (Marradi); AR: Montegonzi!; La Verna; GR: Poggio Cavallo; Arcidosso; Argentario; Is. Giglio; Is. Giannutri; LI: M. Capanne (Elba)!; Poggio (Elba); Is. Capraia!; PI: M. Serra.

MARCHE E UMBRIA. AP: Grottammare; MC: Camerino; M. Rotondo (Sibillini); PG: Perugia; L. Trasimeno; M. Cucco.

LAZIO. RM: Roma (Ponte Galeria; Acquacetosa; Ponte Nomentana; Mezzo Camino); Acilia; Fiumicino; Maccarese; Riano; Mandela; Riofreddo; L. di Albano; Marino; FR: M. Viglio; LT: Cisterna; dint. Norma; M. Semprevisa; Monte S. Biagio; Piana di S. Onofrio (M. Aurunci); Gaeta; Terracina; RI: Montasola; Poggio Mirteto; M. Terminillo; VT: Carbognano.

ABRUZZO E MOLISE. AQ: Rocca di Mezzo; Ovindoli; P.so Godi (Scanno); Pescasseroli; M. Tranquillo; M. Morrone; P.so S. Leonardo; M. Marsicano; Campo Imperatore; CH: Palena; TE: M. Gorzano; CB: Campitello Matese; M. Miletto.

PUGLIA. BA: Casamassima; Gioia del Colle; Altamura; BR: Francavilla Fontana; FG: Foresta Umbra (Gargano).

CAMPANIA. NA: Camaldoli (Napoli); SA: Piano Acernese (M. Picentini); Vallo Lucano.

CALABRIA E BASILICATA. CZ: M. Gariglione; CS: M. Botte Donato; RC: Montalto; Gambarie; Arasì; Capo Spartivento; Ciminà; PZ: Pollino (M. Serra del Prete; Pian Ruggio; Piani del Pollino; Colle Gaudolino); MT: Policoro (3).

48.140.0. 019.0 *Ocypus* (*Ocypus*) *olens* (Müller, 1764)

CATEGORIA COROLOGICA. Europeo-mediterraneo (introdotto in Nord America).

GEONEMIA ITALIANA. Tutta Italia (424).

ECOLOGIA. Da planiziale a montano (0-1400 m), praticolo, antropofilo, in Sicilia anche silvicolo (Sabella e Zanetti, 1991).

NOTE. Si tratta probabilmente della specie del gruppo più diffusa nel nostro paese, essendo presente anche in quasi tutte le isole minori. Sulle Alpi, comunque, raramente supera gli 800 m. Al Nord è frequente soprattutto presso i centri abitati, in giardini, orti, zone ruderali, anche di limitata estensione.

PIEMONTE VAL D'AOSTA. TO: Torino; Stura; Collina di Torino (Valpatonera; Eremo; Valsalice); Beinasco; Chivasso; Collegno; Leinì; Coazze; Cuorgnè; Ivrea; Rocca Canavese; Andrate; AL: Spinetta

Marengo!; Avolasca; Arquata Scrivia; Gavi; Ovada; Prasco; Borgoratto; Strevi; Voltaggio; AT: Penango!; CN: Savigliano; Fossano; NO: Novara; Fontaneto d'Agogna; Cressa; Armeno; Omegna; Ameno; Bracchio!; Cicogna!; Macugnaga; Bognanco!; VC: Oropa; Candelo; AO: St. Christophe.

LIGURIA. GE: Genova; Arenzano; Molassana; Varazze; Cogoleto; Fontanegli; Santuario Vittoria; M. Fasce; Marzano; Piandeipreti (Uscio); Uscio; Chiavari; Lavagna; Rapallo; Casella; Crocefieschi; Campo Ligure; IM: Imperia; Porto Maurizio!; S. Remo; Bordighera; SP: Ameglia; Bottagna!; P.so di Cento Croci; SV: Savona; Noli; Finale; Celle!; Loano!; Albisola; Albenga; Laigueglia; Ferrania; Girini di Dego.

LOMBARDIA. MI: Milano!; Bresso; Sesto S. Giovanni; Desio; Seregno; Seveso; Monza; Correzzana; Besana Brianza; Ceriano Laghetto; Liscate!; Vaprio d'Adda; Cassano d'Adda; Basiano!; Ozzero; Albairate!; Vigarolo; Corte Palasio!; BG: Bergamo; Romano di Lomb.; Ghisalba; Roncola; Bossico; Ponteranica; Zandobbio; S. Pellegrino; Gorno; Selvino; Bordogna!; Roncobello; Solto Collina; BS: Brescia!; Fornaci; Monte Isola (L. d'Iseo); Ome; Monticelli Brusati; Gussago; Castel Mella; M. Orfano (Rovato)!; Orzinuovi; Serle; Paitone; Cevo; Villanuova sul Clisi; V. Saviore; CO: Como; Albate; Valmorea!; Rodero; Canzo; Asso; Merate!; Casatenovo; L. di Sartirana (Merate); Campione; Carlazzo; Dongo; Montemezzo; Varenna; CR: Cremona; Casalmaggiore; MN: Quistello; Bosco Fontana (Marmirolo); Sirmione; PV: Pavia!; Vigevano; Pancarana; Rocca dè Giorgi; Stefanago (Fortunago)!; S. Desiderio (Godiasco)!; SO: Sondrio; Morbegno; Selvapiana (Morbegno); Roncaglia!; Dazio!; Cagnoletti; Ponte in Valt.; Isolaccia; Somaggia; Menarola!; Borgonuovo (Piuro)!; VA: Varese; Rasa!; Cantello; Tradate; Solbiate Arno!; Venegono; Angera; Cittiglio; Ghirla; Bedero Valcuvia; Cunardo; Gaggiolo.

TRENTINO ALTO ADIGE. BZ: Bad Ratzes (Bagni di Razzes) (1); TN: V. Genova; Laghestel (Pinè).

VENETO. VE: Venezia (Lido; Punta Sabbioni; Alberoni; S. Giuliano); Marghera; Marcon; Caorle; Chioggia; PD: Padova; Limena; Teolo; Sant. Praglia; Abano; Anguillara Veneta; RO: Rovigo; TV: Treviso; Ponzano; Asolo; Montello; Follina; S. Pietro (Valdobbiadene); VI: Chiampo; Valdagno; Alonte; Sossano; Barbarano Vicentino; Lumignano; M. Summano; VR: Verona; Avesa!; Parona; Sona; Cerea; Caprino Veronese; Montericco (Negrar); Malcesine; Torri Benaco; M. Baldo; Soave; Roncà; Montecchia di Crosara; Roverè.

FRIULI VENEZIA GIULIA. TS: Trieste; Carso; GO: Monfalcone; PN: Tramonti di Sopra; Travesio; Anduins; UD: Cividale; S. Daniele; Belvedere di Grado; Carnia Piani; Ligosullo; Piano d'Arta.

EMILIA ROMAGNA. BO: Bologna; Marzabotto; Castel d'Aiano; L. di Brasimone; FE: Ferrara; S. Alberto; Filo; Lido delle Nazioni; FO: Colmano; S. Marino; S. Benedetto in Alpe; Verghereto; MO: Modena; Soliera; Nirano; Montese; PC: Piozzano!; Trebecco!; PR: Fidenza; RA: Ravenna; Faenza.

TOSCANA. FI: Firenze; Campi Bisenzio; Sesto Fiorentino; M. di Calvana; Marradi; Badia della Valle (Marradi); Ronta; Colla di Casaglia; AR: Chitignano; Alpe della Luna; GR: dint. Grosseto; Torre di Collelungo; Scarlino; Is. Giglio; Is. Giannutri; M.ti dell'Uccellina; LI: Livorno; Is. Capraia LU: Viareggio; Stazzema; PI: S. Rossore!; PT: Pistoia; Montecatini; Pianosinatico; SI: Castellina in Chianti.

MARCHE E UMBRIA. AN: Senigallia; AP: Montemonaco; M. Sibilla; M. dell'Ascensione; MC: Macerata; Apiro; Pontile; S. Ginesio; PS: M. Neronę!; M. Catria; Urbino!; Carpegne; PG: Perugia; Lippiano (Città di Castello); Foligno; TR: L. di Piediluco.

LAZIO. RM: Roma (Settecamini; M. Sacro; Tomba di Nerone; Ponte Nomentana); Acilia; Fiumicino; Maccarese; Riserva Tevere-Farfa (Nazzano); Campolungo (Nazzano)!; Albano; Marino; Riofreddo; Manziana; Mandela; Percile; Bracciano; L. di Martignano; Torre Astura; FR: Filettino; LT: Sabaudia; Cisterna!; Cori; Sermoneta; Aprilia; Capo Circeo; Is. Ponza; Is. Ventotene; RI: Montasola; Osteria Tancia (M. Sabini); Poggio Mirteto; VT: Bassano (Sutri).

ABRUZZO E MILISE. AQ: L'Aquila; Assergi; Rocca di Cambio; Pratola Peligna; Fonte d'Amore (Sulmona); Castel di Sangro; Colle della Croce; CH: Vacri; Bocca di Valle; Francavilla; PE: Montesilvano; Popoli; Caramanico; CB: Guglionesi; IS: Montenero Valcocchiara.

PUGLIA. BA: Altamura; Gravina; Noci; BR: Torre Testa; Oria; FG: Manfredonia; S. Giovanni Rotondo; S. Marco in Lamis; Torre Varano; Foresta Umbra; Is. Capraia; LE: Casarano; Porto Badisco; Laghi Alimini; Tricase; Otranto; Capo S. Maria di Leuca; Matino; Maglie; Ugento; TA: Circummarpiccolo; Campomarino; F. Lato 10 km foce.

CAMPANIA. NA: Napoli (Vomero); AV: Bagnoli Irpino; BN: M. Pentime; Pitraroja; P.so S. Crocella; CE: Matese; SA: Atena Lucana; S. Rufo; Sella di Corticato; S. Biase (Ceraso); M. Sacro; Paestum.

CALABRIA E BASILICATA. CZ: Sambiase; CS: L. Arvo; M. Botte Donato; Lorica; Camigliatello; Fossiata; RC: Reggio Calabria; Roccaforte del Greco; Antonimina; Melito di Porto Salvo; Montalto; PZ: Potenza; Viggianello; MT: Matera; Nova Siri; L. di S. Giuliano; Ferrandina; Salandra; Bosco Panatno (Policoro) (3).

SICILIA. PA: Palermo; M. Pellegrino; Is. delle Femmine; Terrasini; Addaura; Mondello; Piana degli Albanesi; M. Maganoce; Monreale; Castelbuono; Piano Zucchi; Piano Battaglia; M. Mufara; M. Cucullo; Gibilmanna; Ficuzza; Gratteri; Geraci; AG: Agrigento; Caltabellotta; Is. Lampedusa; Is. Linosa; CT: Milo; Caltagirone; EN: Lago di Pergusa; ME: Messina; Milazzo; S. Fratello; M. Antennammare; Capo Tindari; Castell'Umberto; Roccella Valdemone; M. Soro; Cesarò; Floresta; Fiumedinisi; Is. Stromboli; Is. Vulcano; Is. Filicudi; Is. Salina; Is. Lipari; RG: Ragusa; Comiso; Donnalucata; SR: Siracusa; Pachino; M. Lauro; Sortino; Cassaro!; Lentini; Noto; Palazzolo Acreide; Avola Vecchia; TP: L. Trinità (Castelvetrano); Castelluzzo; Mazara del Vallo; M. Sparagio; Cave di Cusa (Campobello di Mazara); Lido di Valderice; Selinunte; Segesta; Is. Favignana; Is. Levanzo; Is. Marettimo; Is. Pantelleria (Montagna Grande; Punta Elefante).

SARDEGNA. CA: Cagliari; Iglesias; Gonnesa; Fluminimaggiore; Morgongiori; Domus de Maria; Villacidro; Is. di Vacca; Capo Spartivento; Chia; NU: Orgosolo; Fonni; Gennargentu; Cala Gonone; Perdasdefogu; Villanova Strisaili; Aritzo; Macomer; Badde Salighes; Nurallao; Lula; Stagno di Bara!; OR: Tharros; Milis; Abbasanta; S. Caterina Pittinuri; SS: Alghero!; Capo Caccia!; Fertilia; Ittiri; Capo Testa; Platamona; Ozieri; Nughedu; Nulvi; Oschiri; Pattada; Olbia; Is. Maddalena; Is. Caprera; Golfo Aranci; M. Limbara; Golfo d'Arzachena; Is. Tavolara; Is. Asinara; Is. Molara; Porto S. Paolo.

48.140.0. 020.0 *Ocypus* (*Ocypus*) *ophthalmicus* (Scopoli, 1763)

CATEGORIA COROLOGICA. Paleartico.

GEONEMIA ITALIANA. Tutta Italia (344).

ECOLOGIA. Eurizonale (0-2500 m), praticolo, xerofilo.

NOTE. Di questa specie, diffusa in quasi tutta la regione paleartica, sono state descritte numerose sottospecie; in Italia si trova solo la forma nominale, anche se gli esemplari della Sicilia sembrano avere affinità con alcune razze iberiche (Sabella e Zanetti, 1991). La varietà *hypsibatus* (Bernhauer, 1899), fenotipicamente molto dissimile dalla forma nominale, è probabilmente solo un ecotipo di alta quota. Gli esemplari delle Alpi al di sopra dei 2000 m appartengono quasi sempre a tale forma, che però localmente scende anche a quote molto inferiori, spesso mista alla forma nominale e con esemplari dalle caratteristiche intermedie. La si ritrova, meno diffusa, anche negli Appennini e nei Pirenei.

PIEMONTE E VAL D'AOSTA. TO: dint. Torino; M. Musinè; Cesana Alta!; Valprato Soana; Locana; Ceresole; Colle del Nivolet; Forno Alpi Graie; L. Malciaussià!; Pian della Mussa; Villanova (V. Pellice); Rif. Jervis (V. Pellice); Colle della Croce; Colle delle Finestre; Fenestrelle; Col dell'Assietta; M.ti della Luna (Cesana Torinese); M. Sises; Sestriere; Tredici Laghi (V. Germanasca); AL: Ovada; Strevi; Stazzano; Predosa!; Voltaggio; Cosola; CN: dint. Cuneo; Fossano; Crissolo; Monviso; Chianale; Colle del Mulo; Limone Piem.; Rocca dell'Abisso; Certosa Pesio; M. Mongioie; M. Moro; M. Ormea; M. Saccarello; Garessio; Viozene; P.so Tanarello; Trinità; NO: Fontaneto d'Agogna; Mergozzo; Malesco; Macugnaga; Bognanco; V. Cairasca; Alpe Veglia; M. Leone; M. Diei; Alpe Devero!; Premia!; V.

Formazza; VC: Crescentino; Graglia; M. Mucrone; V. Chiobbia (V. Cervo); L. della Vecchia (V. Cervo); Civiasco; Alagna; AO: Gressoney la Trinitè; Gressoney St. Jean!; L. Gabiet; Col d'Olen; Fiery (V. d'Ayas); Brusson; Champoluc; St. Jacques; Breuil; Valtournenche!; Colle Picc. S. Bernardo; Courmayeur; Pré S. Didier; Entreves; La Thuile!; Colle Gran S. Bernardo; Lillaz; L. di Chamolé; V. Cogne; Valnontey;

LIGURIA. GE: Genova; Molassana; M. Fasce; Sant. Vittoria; Fontanegli; Casella; M. Aiona (Rezzoaglio); Fontanigorda; M. Antola; S. Fruttuoso; IM: Oneglia; Taggia; S. Bartolomeo; S. Remo; M. Bignone; Pieve di Teco; Castellaro; Pigna!; Cosio d'Arroscia; Nava; Monesi; SP: La Spezia; Monterosso al Mare; SV: Savona; Vado; Albisola; Laigueglia; Varazze; Noli.

LOMBARDIA. MI: Milano; Gaggiano; Rescaldina; Varedo; Monza; Vaprio d'Adda; BG: Torre Pallavicina!; Valcava; M. Presolana; M. Vigna Vaga; L. Gemelli; L. di Sardegnana; Foppolo; Schilpario; P.so del Vivione; P.so Manina; BS: Brescia; Rezzato; M. Maddalena; Paitone; M. Orfano (Rovato)!; M. Palosso; V. Saviore; P.so Gavia; CO: Merate; M. Grigna Mer.; M. Grigna Sett.; M. S. Primo; PV: Torre d'Isola; Villareale (Cassolnovo); Spessa!; Oriolo; M. Penice; SO: V. Codera; Gordona!; Delebio; Albaredo; Berbenno; Selvetta; Sondrio; M. Vespolo; L. di Belviso; Polaggia; Isolaccia; P.so Stelvio; P.so Foscagno!; P.so Gavia; VA: Maccagno; Ispra; Mercallo!.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Branzoll (Bronzolo) (1); Klausen (Chiusa) (1); Villanders (Villandro) (1); Brixen (Bressanone) (1); Tils (Tiles); Plose (1); Sand in Taufers (Campo Tures); Kasern Ahrntal (Casere, V. Aurina); Seiser Alm (Alpe di Siusi); Langkofel (Sasso Lungo); St. Ulrich (Ortisei); L. di Fanes; Trafoi; TN: Avio; Sega d'Ala; Madonna di Campiglio!; Rif. Bedole (V. Genova); L. di Ledro; M. Bondone; Rovereto; Loppio; Folgaria; Andalo; Rumo; Cavareno; Malga Mare (Pejo); Levico; Vetriolo; Pergine; Predazzo; L. Lagorai; V. di Fiemme; L. Fedaia; P.so S. Pellegrino; P.so Valles; P.so Rolle; Baita Segantini (2).

VENETO. VE: Venezia; Lido; Mestre; Marina di Eraclea; S. Anna di Chioggia; BL: Cansiglio; M. Pavione; Pecol (V. Zoldo); Forno di Zoldo; Calalzo; Alleghe; Vigo di Cadore; Cortina; P.so Giau; P.so Falzarego; Tre Cime di Lavaredo; M. Civetta; Croda Rossa; Rif. Tiziano (Gr. Marmarole); P.so Pordoi; PD: Teolo; TV: Ponzano; Lovadina; Maserada; S. Pietro (Valdobbiadene); VI: Valdagno; M. Grappa!; Asiago; Cima Dodici; Cesuna; VR: Verona; Montecchio; Negrar; Marcellise; Rivoli; Monte; M. Pastello; Magnano; Oppeano; Soave; Monteforte d'Alpone; Roncà; Cerna; Campofontana; Selva di Progno.

FRIULI VENBEZIA GIULIA. TS: Trieste; PN: Tramonti di Sopra; UD: Ligosullo; Paularo!; Piano d'Arta; Forni di Sotto; M. Mataiur; Lignano.

EMILIA ROMAGNA. BO: Bologna; Camugnano; FE: Mesola; Massenzatica; FO: Riccione; Tredozio; Premilcuore!; Campigna; Balze; MO: Rocca Malatina; M. Cimone; PC: Gragnano Trebbiense!; Travo!; Perino!; Coli!; P.so Penice; RA: Ravenna; S. Vitale; Brisighella.

TOSCANA. FI: Firenze; M. Morello; Marradi; Badia della Valle (Marradi); AR: Alpe di Poti; Camaldoli; GR: Arcidosso; Orbetello; LI: Livorno; LU: M. Altissmo; M. Tambura; Torre del Lago; PI: Marina di Pisa; PT: Alto Appennino Pistoiese.

MARCHE E ABRUZZO. AP: M. Sibillini (Forca Viola; Pian Perduto); MC: Macerata; M. Lieto; Bolognola; Cingoli; M. S. Vicino; Forcella Fargno!; PS: M. Catria; Soanne; PG: Foligno; Spoleto.

LAZIO. RM: Roma; Riofreddo; Percile; Cerreto Laziale; Olevano Romano; Arsoli; M. Semprevisa (Lepini); FR: Filettino; LT: dint. Norma; Capo Circeo; RI: Cantalice; Terminillo; L. di Duchessa.

ABRUZZO E MOLISE. AQ: L'Aquila; Campo Imperatore; Tagliacozzo; Assergi; M. Faito; Pescasseroli; M. Marsicano; Castel di Sangro; M. Sirente; M. Morrone; Sorgenti F. Sangro; Barrea; M. Greco!; M. Calvo; Trasacco; Lecce nei Marsi; M. Velino; Molina Aterno; Ovindoli; Rovere; Campo di Giove; M. Tavola Rotonda; CH: Maiella (P.so S. Leonardo; Fonte Romana; Blockhaus; M. Maielletta; P.so Lanciano); PE: Popoli; CB: M. Miletto.

PUGLIA. BA: Altamura; Gravina; Castellana; Gioia del Colle; FG: Varano; S. Giovanni Rotondo; Is. S. Nicola; LE: Lecce; Matino.

CAMPANIA. AV: M. Cervialto; BN: Sassinoro; CE: L. del Matese; SA: Atena Lucana.

CALABRIA E BASILICATA. CS: Pollino (Colloreto; Mazzicanino); RC: Montalto; S. Eufemia; Melito di Porto Salvo; PZ: Viggianello!; MT: Policoro; Ferrandina; Salandra.

SICILIA. PA: M. Pellegrino; Piano Battaglia; Collesano; AG: Agrigento; CL: Vallelunga Pratameno; CT: M. la Nave (Etna); Belpasso; Randazzo; EN: Pergusa; Borgo Cascino; ME: Capo d'Orlando; M. Soro; Milazzo; Is. Lipari; RG: Pachino; SR: Siracusa; Augusta; Megara Hyblaea; M. Lauro; TP: Trapani;

SARDEGNA. CA: Decimomannu; Sarroch; Villacidro; Carloforte (Is. S. Pietro); NU: Gennargentu; M. Spada!; SS: Alghero.

48.140.0. 022.0 *Ocypus* (*Ocypus*) *pedemontanus* (G. Müller, 1924)

CATEGORIA COROLOGICA. W-europeo.

GEONEMIA ITALIANA. Alpi centro-occidentali (24).

ECOLOGIA. Submontano e montano (300-1400 m), silvicolo.

NOTE. La presenza di questa specie in Italia interessa all'incirca tutto l'arco occidentale delle Alpi fino al Lago di Como; tuttavia ad ovest della Dora Baltea la distribuzione sembra essere più frammentata diversamente da quanto avviene dalle Prealpi biellesi al Varesotto, ove essa è diffusa pressochè in modo continuo. È difficile dire se questa minore frequenza in talune aree (Province di Torino e Cuneo) sia effettiva o dovuta principalmente a scarsità di ricerche.

PIEMONTE E VAL D'AOSTA. TO: dint. Torino; Villar Perosa; S. Giorio di Susa!; CN: Alta V. Po; Crissolo; NO: Fontaneto d'Agogna!; Orta; Pella; Carpugnino!; Cicogna!; VC: Cima Moncerchio; Graglia; Montesinaro; Piedicavallo; Biella!; Oropa!; Bocchetto di Sessera; V. Sessera; M. Marca; M. Barone; Sostegno; Zumaglia; Breia; Varallo; Borgo d'Ale; Albano Vercellese.

LOMBARDIA. CO: Campione; Valmorea!; SO: Menarola!; VA: Cavagnano; Rasa!.

48.140.0. 025.0 *Ocypus* (*Ocypus*) *rhaeticus* (Eppelsheim, 1873)

CATEGORIA COROLOGICA. Alpino.

GEONEMIA ITALIANA. Alpi centrali (63).

ECOLOGIA. Da submontano ad alpino (300-2000 m), silvicolo.

NOTE. Questa specie sembra avere un'areale disgiunto, almeno nel versante sudalpino: un nucleo, più consistente, popola le montagne (Alpi e Prealpi) fra il Lago di Como e la Valle dell'Adige e l'Altopiano di Asiago; più a ovest un'altro nucleo si trova fra le Prealpi Biellesi e la Valsesia. Delle regioni comprese fra queste due zone, all'incirca le Alpi Lepontine (Ossola, Canton Ticino, monti del Lago Maggiore, Varesotto) non mi sono note segnalazioni e ritengo probabile che questa lacuna sia reale e non solamente dovuta a difetto di ricerche. Luigioni indica questa specie anche per le Alpi Carniche, ma il dato è senz'altro errato. Da notare che la località generalmente riportata "Monte Rosa" è erronea, o va comunque intesa in senso molto lato.

PIEMONTE E VAL D'AOSTA. TO: Andrate; NO: Pella; S. Maurizio d'Opaglio!; Carpugnino!; VC: Oropa!; Bielmonte; Bocc. di Sessera!; V. Melogna (Piedicavallo); V. Chiobbia (V. Cervo); M. Marca; Moncerchio; Sant. Graglia; Trivero; Pray!; Masseranga!; Varallo; Campertogno; Cervatto; Rimella; AO: Fontainemore!; Brusson.

LOMBARDIA. BG: Ponte Selva; Dossena; Valpiana; Schilpario!; P.so della Manina; Pizzo Camino; P.so

Presolana!; Oltre il Colle; Zambla!; Bordogna!; Spiazzi; Valcava; BS: Collio; Pezzeda; M. Palo; Tavernole sul Mella; M. Guglielmo; Cevo; Edolo!; V. Porcino (Lumezzane)!; V. Cadino (Breno); V. Saviore; Case di Degna; CO: Esino Lario; SO: Tagliate (Cosio); Valmadre (Fusine); Prà Succ (Civo); Alpe Oro (V. Masino); Alpe Campiascio (V. Fontana); V. del Livrio; Ligari; M. Rolla; Torre S. Maria; Chiesa Valmalenco!; S. Giuseppe; Chiareggio; Franscia; Isolaccia; Bormio; V. Fraele.

TRENTINO ALTO ADIGE. BZ: Trafoi; Stilfserjoch (P.so Stelvio) (1); Ultental (V. d'Ultimo) (1); Morter (1); Meran (Merano) (1); Passeirtal (V. Passiria); Burgeis (Burgusio)!; Fennberg (Favogna); TN: M. Bondone; V. Genova; Lodrone; V. Ampola; Concei!; Pejo; Cavareno; Ossana; Smarano; Ala (La Sega; Vajo delle Cisterne); Tenno; Levico; Folgaria.

VENETO. VI: P.so di Campogrosso (Lessini)!; Bivio Italia (Altop. Asiago)!; VR: S. Giorgio (Lessini); Boscochiesanuova.

48.140.0. 026.0 *Ocypus* (*Ocypus*) *solarii* (G. Müller, 1923)

CATEGORIA COROLOGICA. Alpino.

GEONEMIA ITALIANA. Liguria (12).

ECOLOGIA. Submontano e montano (200-1000 m), silvicolo.

NOTE. Questa specie sembra non oltrepassare lo spartiacque alpino, popolando esclusivamente il versante marittimo, sia in Italia che in Francia (entroterra di Nizza e Monaco); purtroppo non mi è noto il limite occidentale dell'areale di questo Stafilinide. Dvorak (1984) segnala la specie di Firenze, dato del tutto inverosimile.

LIGURIA. IM: Isolabona; Seborga; Ciaixe!; Carmo Langan (Pigna)!; Alta V. Nervia; Nava; Triora; Castellaro; Taggia; Arma di Taggia; S. Remo; M. Bignone; Bussana; P.so Ghimbegna (Ceriana)!; Camporosso; Borgomaro; Pieve di Teco; Colle S. Bartolomeo!; SV: Colle Scravaion (Bardineto).

48.140.0. 027.0 *Ocypus* (*Ocypus*) *tenebricosus* (Gravenhorst, 1846)

CATEGORIA COROLOGICA. Centroeuropeo.

GEONEMIA ITALIANA. Alpi orientali (78).

ECOLOGIA. Da submontano a subalpino (100-1700 m), silvicolo.

NOTE. Il confine occidentale dell'areale di questa specie nelle Alpi italiane sembra essere il Lago di Garda e il solco delle Valli Giudicarie. Nella mia collezione si trovano anche tre esemplari provenienti da Cerceno (CO), circa 150 km ad ovest della località più occidentale nota; data l'eccezionalità di tale dato preferisco attenderne la verifica prima di confermarlo. Luigioni menziona la specie, per evidente confusione con altre congeneri, anche dell'Italia centrale e meridionale.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Margreid (Magrè); Glen (Gleno); Jenesien (S. Genesio); Ritten (Renon); Klobenstein (Collalbo); Tirol (Meran) (Tirolo, Merano); Nals (Nalles) (1); Tils (Tiles); Brixen (Bressanone) (1); St. Ulrich (Ortisei); Mühlbach (Rio Pusteria) !; Sand in Taufers (Campo Tures); Niederdorf (Villabassa); TN: Borghetto; Cei; S. Leonardo (Avio) (4); Valfredda (Ala) (4); Pomarolo; Acquaviva; V. Ampola; Loppio; Ruffrè; Civezzano; Albiano; Lases; Laghestel (Pinè); S. Cristoforo (L. Caldonazzo); Vetriolo; Levico; Grigno; P.so del Brocon; Lavarone; Molina di Fiemme (2); Ziano di Fiemme (2).

VENETO. BL: Cansiglio!; Feltre; M. Aurin; Cortina; Vigo di Cadore; Auronzo; Calalzo; Laggio di Cadore; Lorenzago; Pecol (V. di Zoldo); Pieve d'Alpago!; TV: Follina; Montello; S. Pietro (Valdobbiadene); VI: Santorso; Altavilla (M. Berici)!; Pian delle Fugazze; Asiago; M. Meletta (Gallio); M. Grappa; VR: Avesa; Cancello; Vajo di Squaranto; Roverè; P.so Fittanze; Boscochiesanuova; Castagnè;

Fumane; Montericco (Negrar); Montecchia di Crosara; M. Baldo (Rif. Novezzina; Bocca di Navene; Cavallo di Novezza); Malcesine; S. Zeno di Montagna.

FRIULI VENEZIA GIULIA. TS: Trieste; Aquilinia; Aurisina; Slivia; Sistiana; GO: Gorizia; L. di Doberdò!; PN: M. Cavallo; Piancavallo; For. del Prescudin; Sella di Giais; M. Raut; Toppo!; Travesio!; Campone!; Clauzetto!; UD: M. di Ragogna!; Attimis; Tarcento; Musi!; M. Musi; P.so di Tanamea; Carnia Piani; L. di Cavazzo; Purgessimo; Piani d'Arta; Paularo!; Ligosullo; Rigolato; Timau; Enemonzo!; Forni di Sopra; Riofreddo; M. Mataiur.

48.140.0. 001.0 *Ocypus* (*Pseudocypus*) *aeneocephalus* (De Geer, 1774)

CATEGORIA COROLOGICA. Europeo.

GEONEMIA ITALIANA. Alpi (1).

ECOLOGIA. Da planiziale a subalpino, praticolo, xerofilo.

NOTE. Con questo nome i vecchi Autori indicavano tre specie: *O. aeneocephalus*, *O. cupreus* e *O. fortunatarum*; già Porta nota che in tutta Italia *cupreus* (che considera una varietà) sostituisce il vero *aeneocephalus*. Benchè il nome di questa specie si incontri frequentemente nelle collezioni, a causa di errori di determinazione (soprattutto con *O. fulvipennis confusus* e *O. cupreus*), essa manca pressochè in tutta Italia. Peez la cita di Brixen e Plose ma ritengo che queste segnalazioni, ancorchè plausibili, meritino la conferma con catture recenti. L'unico esemplare che ho potuto vedere rimane quello di Merano conservato al Museo di Vienna; forse questa specie è diffusa anche altrove in Val Venosta, ove sembrano esservi habitat favorevoli.

TRENTINO ALTO ADIGE. BZ: Meran (Merano).

48.140.0. 002.0 *Ocypus* (*Pseudocypus*) *aethiops* (Waltl., 1835)

CATEGORIA COROLOGICA. W-mediterraneo.

GEONEMIA ITALIANA. Sicilia (5).

ECOLOGIA. Montano, silvicolo.

NOTE. Luigioni e Porta citano questa specie anche della Toscana; ho però visto solo esemplari della Sicilia, ove per di più, si trova esclusivamente sulle catene montuose del nord dell'isola. Al Museo di Vienna si trova un antico esemplare cartellinato "Aspromonte", località che reputo molto sospetta. In Italia, quindi, vive solo la ssp. *luigionii* (G. Müller, 1926), il cui valore sistematico è abbastanza dubbio.

SICILIA. PA: Castelbuono; Ficuzza; ME: Fiumara di Tono; Mistretta; M. Soro; Portella di Femmina Morta.

48.140.0. 009.0 *Ocypus* (*Pseudocypus*) *cupreus* (Rossi, 1790)

CATEGORIA COROLOGICA. S-europeo.

GEONEMIA ITALIANA. Italia continentale, Sicilia (115).

ECOLOGIA. Da planiziale a montano, praticolo, termofilo.

NOTE. Questa specie manca dalla Sardegna (contrariamente a quanto indicato da Luigioni) ed è assai rara e localizzata nelle regioni settentrionali a nord del Po. Peez e Kahlen riportano un vecchio dato di Bolzano, che mi sembra molto dubbio.

PIEMONTE E VAL D'AOSTA TO: Rivoli; AL: Spinetta Marengo!; Tortona; Stazzano; Cremolino.

LIGURIA. GE: Genova; M. Fasce; SV: Albenga.

LOMBARDIA. BS: Pozzolengo.

VENETO. VE: Punta Alberoni; Marghera; Mestre; Marcon; PD: Este; Monselice; Piazzola sul Brenta; TV: Lovadina; Ponzano; Montello; VR: Valeggio Mincio.

FRIULI VENEZIA GIULIA. TS: Trieste; Duino; Sistiana; Malchina; GO: Monfalcone; UD: Palmanova.

EMILIA ROMAGNA. BO: Bologna; FE: Ferrara; FO: Forlì; Alfero; Campigna; MO: Modena; PC: Borgonovo V. Tidone!; RA: Granarolo; Brisighella.

TOSCANA. FI: M. Morello; AR: Alpe di Poti; P.so La Calla; Cortona; GR: Massa Marittima; Arcidosso; Alberese; Is. Giglio; LI: Livorno; Is. Gorgona; Is. Capraia; SI: M. Cetona; PI: S. Rossore.

MARCHE E UMBRIA. AN: Senigallia; AP: Montemonaco; M. Sibilla; L. di Pilato; MC: Camerino; Cingoli; Bolognola; PS: M. Nerone; PG: Perugia; Massa Martana; Foligno; Lippiano (Città di Castello).

LAZIO. RM: Roma (Tre Fontane; Acquacetosa); Acilia; Fiumicino; Ladispoli; Lido dei Pini; S. Maria di Galeria; Marino; Tuscolo; M. Cavo; Albano; Carpineto Romano; Riofreddo; Altipiani di Arcinazzo; Camerata Nuova; M. della Tolfa; FR: M. Scalambra; Acuto; LT: M. Faggeto (M. Aurunci); Cisterna; Sabaudia; RI: Rieti; VT: M. Cimino; Oriolo Romano; Tarquinia.

ABRUZZO E MOLISE. AQ: L'Aquila; Assergi; Pescasseroli; CH: M. Maielletta; TE: Castelli.

PUGLIA. BA: Altamura; Gioia del Colle; Castel del Monte; BR: Francavilla Fontana; FG: L. di Lesina; Cagnano Varano; TA: Circummarpiccolo.

CAMPANIA. NA: Posillipo; AV: M. Terminio; BN: M. Mutria; SA: S. Rufo; Atena Lucana.

CALABRIA E BASILICATA. CS: P.so Crocetta; Camigliatello; Frascineto; RC: Montalto; Delianuova; PZ: M. Vulture; MT: Matera; Nova Siri; Accettura.

SICILIA. PA: Piana degli Albanesi; Piano Battaglia; Pian Zucchi; Ficuzza; EN: Cerami; ME: M. Peloritani; Floresta; M. Soro; Mistretta; SR: M. Lauro; Pachino.

48.140.0. 011.0 *Ocypus* (*Pseudocypus*) *fortunatarum* (Wollaston, 1871)

CATEGORIA COROLOGICA. W-mediterraneo.

GEONEMIA ITALIANA. Italia peninsulare, Sicilia, Sardegna (45).

ECOLOGIA. Da planiziale a montano, praticolo.

NOTE. Specie a distribuzione circumtirrenica. Le citazioni di Luigioni e Porta per il Piemonte sono certamente erronee, ma è possibile che essa fosse un tempo presente in Liguria. È l'unica specie di questo sottogenere presente in Sardegna, ove sembra essere piuttosto comune.

TOSCANA. FI: Firenze; GR: Ansedonia; Is. Giglio.

LAZIO. RM: Palo; LT: L. di Fogliano.

PUGLIA. BA: Gioia del Colle; FG: Is. Pianosa; LE: Torre Lapillo; Otranto; L. Alimini; TA: Chiatona; Martina Franca.

CALABRIA E BASILICATA. RC: Montalto.

SICILIA. PA: Favorita (Palermo); M. Pellegrino; Monreale; ME: Milazzo; Contesse; SR: Pachino; TP: Is. Favignana; Is. Marettimo; Is. Pantelleria.

SARDEGNA. CA: Cagliari; Poetto; Ingurtosu Marina; Quartu S. Elena; S. Gilla; Dolianova; Torre di Flumentorgiu; Villacidro; NU: Gennargentu; Orune; Dorgali; Aritzo!; Baunei; Seui; Badde Salighes; OR: Oristano; S. Giusta; SS: Capo Testa; Stagno di Pilo; Is. Piana (Asinara); Olbia; Alà dei Sardi; M. Limbara; Golfo Aranci.

48.140.0. 012.0 *Ocypus* (*Pseudocypus*) *fulvipennis* (Erichson, 1840)

CATEGORIA COROLOGICA. Centroasiatico-europeo.

GEONEMIA ITALIANA. Italia continentale (174).

ECOLOGIA. Da planiziale a montano (200-1800 m), praticolo.

NOTE. La ssp. nominale si trova principalmente nelle regioni alpine presso lo spartiacque, nel resto del paese vive la ssp. *confusus* (Baudi), caratterizzata dal colore uniformemente scuro di corpo e zampe; mi sono però note popolazioni ad elitre rosse anche lungo il basso corso del Po e nell'Appennino centrale.

PIEMONTE E VAL D'AOSTA. TO: Torino; Castiglione Torinese; Gassino; Cuorgnè; Oulx; Sauze d'Oulx; Bardonecchia; Moncenisio; V. Germanasca; AL: Tortona; Cassano Spinola; Persi; Voltaggio; Serravalle Scrivia; CN: Limone Piem.; Certosa Pesio; Palanfrè; Viozene; Ormea; Garessio; M. Saccarello; NO: Macugnaga; S. Maria Maggiore; VC: Alagna; V. Vogna; Graglia; Oropa; AO: Gressoney; Brusson; Breuil; Antagnod!; Courmayeur.

LIGURIA. GE: Genova; Sant. Vittoria; M. Fasce; Torriglia; Propata!; M. Antola; M. Montarlone; IM: Ponte Nava; SV: Carcare; Calizzano.

LOMBARDIA. MI: Cassano d'Adda; BG: Carenno; S. Pellegrino; Antea; Oltressenda Alta; Zambla!; Foppolo; Presolana; M. Sovere; BS: Ome!; Coccaglio; M. Frerone; Vezza d'Oglio; Zoanno; Campolaro; Picedo; M. Pezzeda (Collio); M. Palosso; CO: Albavilla; L. di Sartirana (Merate); M. Resegone; M. Grigna Mer.; Barzio; Primaluna; Casasco; MN: Quistello; PV: Sartirana Lomellina!; Godiasco; M. Penice; P.so Giovà!; SO: Bema; V. Masino; V. di Mello; Torre S. Maria; M. Vespolo; Lovero; V. Grosina!; Alpe Campiascio (V. Fontana); S. Nicolò Valf.; V. Codera; Campodolcino; Borgonuovo (Piuro)!; VA: Gaggiolo.

TRENTINO ALTO ADIGE. BZ: Brixen (Bressanone) (1); Tils (Tiles); Trafoi; Sand in Taufers (Campo Tures); Luttach (Lutago); Brenner (Brennero) (1); Kematen Pfischertal (Caminata, V. di Vizze); Matschertal (V. di Mazia); Seiser Alm (Alpe di Siusi) (1); Pfalzen (Falzes); Niederdorf (Villabassa); Toblach (Dobbiaco); Winnebach (Prato alla Drava); Corvara!; TN: Avio; Pomarolo; P.so Tremalzo (V. Ampola)!; Sfruz; Smarano; Vermiglio!; Civezzano; Levico; Folgaria; Castello Tesino; Canazei.

VENETO. VE: Marghera; BL: dint. Belluno; Feltre; S. Pietro di Cadore; PD: Piazzola sul Brenta; TV: Lovadina; Ponzano; Ponte Priula; Montello; M. Pizzoc; VI: Asiago; Cesuna; VR: Avesa; Villafranca; S. Floriano; Montecchio; P.so Fittanze; Tinazzo (Maregge); Malcesine; M. Baldo (Novezzina; Bocca di Navene).

FRIULI VENEZIA GIULIA. UD: Pradielis; Carnia Piani.

EMILIA ROMAGNA. FE: Pontelagoscuro; MO: Montecreto; Casinalbo; Spilamberto; PC: Piacenza; S. Agostino (Coli)!; Piozzano!; PR: Rigoso; RE: Reggiolo.

TOSCANA. FI: Badia della Valle (Marradi); AR: Alpe della Luna; PT: Boscolungo.

MARCHE E UMBRIA. PS: M. Carpegna; M. Catria; M. Nerone; S. Agata Feltria!; PG: M. Cucco.

LAZIO. RM: Roma (Villa Borghese); Acilia; Riofreddo; Mandela; Olevano Romano; Saracinesco; M. Semprevisa; FR: M. Viglio; Serra S. Antonio; Campo Ceraso (Simbruini); M. Scalambra; RI: Terminillo.

ABRUZZO E MOLISE. AQ: Gran Sasso; Coppito; Pratola Peligna; M. Cristo; Pescasseroli; M. Sirente; M. Palombo; M. Tranquillo; P.so S. Leonardo; Campo di Giove; CH: M. Maielletta; TE: Prati di Tivo; CB: Campitello Matese; IS: Montenero Valcocchiara..

PUGLIA. FG: S. Marco in Lamis.

CAMPANIA. AV: Acqua Vene (Pietrastornina); L. di Laceno; SA: M. Sacro; Campora; Valle Piana (M. Picentini).

CALABRIA E BASILICATA. CS: Camigliatello; Lorica; L. di Cecita; L. Arvo; RC: Gambarie; PZ: Villa d'Agri; Piani del Pollino; MT: Accettura.

48.140.0. 017.0 *Ocypus* (*Pseudocypus*) *mus* (Brullé, 1832)

CATEGORIA COROLOGICA. S-europeo.

GEONEMIA ITALIANA. Italia merid., Sicilia (11).

ECOLOGIA. Da planiziale a montano, euriecio.

NOTE. Oltre alla ben nota presenza di questa specie, con la ssp. *transadriaticus* (G. Müller, 1926), nelle estreme regioni meridionali, è fino ad ora rimasto il dubbio sulla sua esistenza (con la ssp. nominale) nel resto del paese. Luigioni la cita di alcune regioni settentrionali; Horion, oltre a riprendere le citazioni degli Autori italiani, riporta anche delle località precise (M. Baldo; Torino). Non ho mai visto esemplari provenienti da qualsiasi zona dell'Italia centrale e settentrionale, ad eccezione di un vecchio esemplare etichettato "Süd Tirol - Etsch Au" che si trova al Museo di Vienna (coll. Scheerpelz). La sua presenza attuale nel Sud Tirolo, piuttosto improbabile, andrebbe comunque confermata con dati certi e recenti. Anche Peez e Kahlen giudicano molto dubbi i vecchi dati del Sud Tirolo (Bolzano; Sciliar). Ritengo quindi corretto escludere l'esistenza della forma tipica di questo Stafilinide da tutto il nostro paese.

PUGLIA. FG: Foresta Umbra (Gargano).

CALABRIA E BASILICATA. CZ: Cenadi; RC: Delianuova; Zomaro; Gambarie; S. Giorgio Morgeto; S. Eufemia d'Asp.; S. Luca; PZ: Corleto.

SICILIA. CT: Milo; ME: M. Peloritani; Floresta.

48.140.0. 023.0 *Ocypus* (*Pseudocypus*) *picipennis* (Fabricius, 1792)

CATEGORIA COROLOGICA. Paleartico.

GEONEMIA ITALIANA. Italia continentale (167).

ECOLOGIA. Da montano ad alpino (700-2300 m), occasionalmente planiziale, praticolo, xerofilo.

NOTE. Di questa specie, distribuita su un territorio vastissimo (dal Marocco alla Manciuria), sono state descritte un gran numero di razze, circa una ventina, tutte basate sulla conformazione dell'edeago. La situazione attuale, come riportata da Coiffait, non mi sembra molto verosimile e andrebbe rivista alla luce di materiale più abbondante, non scelto, e rappresentativo di tutto l'areale. Anche in Italia le cose non sono del tutto chiare; nella maggior parte del paese (tutte le regioni settentrionali fino alle Marche) si trova la ssp. *fallaciosus* (G. Müller, 1926), che forse potrebbe essere considerata come una semispecie; in Abruzzo la ssp. *abruzzensis* (G. Müller, 1926), scarsamente differenziata dalla forma nominale; la ssp. *picipennis* si trova solo in una ristrettissima zona delle Alpi Marittime e Cozie lungo lo spartiacque; anche gli esemplari del Pollino da me esaminati vanno certamente riferiti alla forma nominale.

Le citazioni di Luigioni per la Sicilia e la Sardegna sono sicuramente erronee, mentre nella collezione di questo stesso Autore, a Roma, si trova un esemplare etichettato "Palagiano (TA)" che mi sembra molto sospetto.

PIEMONTE E VAL D'AOSTA. TO: dint. Torino; Cesana T.!; Cesana Alta!; V. Argentiera (Sauze di Cesana)!; Sauze d'Oulx; Bardonecchia; Moncenisio; Sestriere; Colle dell'Assietta; Colle delle Finestre; Fenestrelle; Pragelato!; AL: Tortona; Cosola; AT: Castelnuovo Don Bosco; CN: Cuneo; M. Ormea; Ormea; Garessio; Ponte Nava; Terme di Valdieri; Trinità; S. Giacomo d'Entracque; P.so Collalunga!; Limone Piem.; Limonetto; V. Pesio; Vinadio; Argentera; Colle della Maddalena!; NO: S. Maria Maggiore; Finero; Macugnaga; V. Cairasca; VC: Cravagliana; Riva Valdobbia!; AO: Brusson; Antagnod!;

Valtournenche; Arpouilles!; Pondel; Valpelline; Courmayeur; Colle del Picc. S. Bernardo; La Thuile!; Cogne; Valsavarenche.

LIGURIA. GE: M. Antola; IM: Alta V. Nervia; M. Saccarello; Triora; SV: Cairo Montenotte.

LOMBARDIA. BG: Valcava; Ghisalba; BS: dint. Brescia; Vezza d'Oglio; V. Brandet (Corteno Golgi)!; V. Saviore; CO: Casasco d'Intelvi; Pian del Tivano; PV: Sartirana Lomellina.!; P.so Giovà; M. Chiappo; Pietragavina; SO: V. Gerola (Fenile; Alpe Olano); Chiareggio; Montagna; Ponte in Valt.; Boirolo; V. Fontana; V. Belviso; M. Padrio; Sondalo; V. Grosina; Bormio; Isolaccia; S. Caterina Valf.; S. Nicolò Valf.; Campodolcino; Madesimo.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Jenesien (S. Genesio) (1); Oberbozen (Soprabolzano); Reinswald (S. Martino)!; Brixen (Bressanone) (1); Tils (Tiles); Vigiljoch, Meran (M. S. Vigilio, Merano) (1); Kreuzjoch (Giogo della Croce) (1); Melag (Melago) (1); Gfrill Tisens (Caprile Tesimo); Fennberg (Favogna); Taufers im Müstertal (Tubre); Stein (Sasso V. di Vizze); Graun in Vinschgau (Curon Venosta); St. Valentin an den Haide (S. Valentino alla Muta); Laas (Lasa)!; Ultental (V. d'Ultimo); Morter (1); Durnwald (Durna in Selva); Sterzing (Vipiteno); Gossensass (Colle Isarco); Wolkenstein (Selva Gardena); St. Christina (S. Cristina Valgardena) (1); St. Ulrich (Ortisei); Sand in Taufers (Campo Tures); Mühlwald (Selva dei Molini); Kasern Ahrntal (Casere V. Aurina); Olang (Valdaora); Niederdorf (Villabassa); Antholzersee (L. d'Anterselva); Toblach (Dobbiaco); TN: M. Calisio; Molveno; V. Genova; Vermiglio!; V. di Rabbi!; V. Piana!; Pejo; Smarano; Cavareno; P.so Mendola; (Mendelpass); M. Penegal; Avio; Rovereto; Polsa (Brentonico); Sega d'Ala; Cembra; Inghiaie (Caldonazzo); Levico; Andalo; Folgaria; Lavarone; Daiano; Pozza di Fassa; Forno (Moena); Canazei; Prade; Castelnuovo; Ospedaletto; P.so Brocon.

VENETO. BL: L. di S. Croce; Cortina; Misurina; Vigo di Cadore; TV: Lovadina; VI: Alonte; Barbarano; VR: Avesa; P.so Fittanze; Corno d'Aquilio (Lessini); Campofontana; Selva di Progno; Tinazzo (Maregge); M. Pastello; M. Baldo (Ferrara; Madonna della Neve).

FRIULI VENEZIA GIULIA. TS: Carso; UD: Carnia Piani; Belvedere di Grado.

EMILIA ROMAGNA. FE: Lido delle Nazioni!; FO: Sorgenti Tevere (M. Fumaiolo); MO: la Santona.

MARCHE E UMBRIA. MC: Macerata; Pintura di Bolognola; Frontignano; dint. Gagliole; M. Lieto; PS: M. Nerone; M. Catria; PG: Lippiano (Città di Castello); M. Subasio; Massa Martana; M. Cucco; Forca Canapine; Castelluccio; TR: Polino.

LAZIO. RM: M. Autore; FR: M. Viglio; RI: M. Terminillo.

ABRUZZO E MOLISE. AQ: Assergi; Campo Imperatore; Gran Sasso; Roccaraso; Rocca di Mezzo; Campo di Giove; M. Tranquillo; M. Calvo; Carsoli; Pescasseroli; M. Palombo; M. Marsicano; P. te Campomizzo; V. Fondillo; M. Sirente; Alfedena; Scanno; Trasacco; Rovere; TE: Montagna dei Fiori.

CALABRIA E BASILICATA. PZ: Pollino (Piani del Pollino!; Piano Toscano).

48.140.0. 004.0 *Ocypus* (*Tasgius*) *ater* (Gravenhorst, 1802)

CATEGORIA COROLOGICA. Europeo (introdotto in Nord America).

GEONEMIA ITALIANA. Italia continentale (9).

ECOLOGIA. Alofilo, sinantropo.

NOTE. Luigioni cita questa specie anche della Liguria e del Piemonte, Porta della Sicilia; difficile ricostruire la reale distribuzione di questo Stafilinide, in apparenza molto raro in Italia. L'unica zona dove sembra reperibile con una certa regolarità è la costa dell'alto Adriatico, ma si trova, con tutta probabilità, anche altrove nella penisola.

TRENTINO ALTO ADIGE. BZ: Meran (Merano).

VENETO. VE: Casse di colmata (Fusina)!; Dogaletto!.

FRIULI VENEZIA GIULIA. GO: Grado; UD: Forni di Sopra.

EMILIA ROMAGNA. RA: Porto Corsini.

TOSCANA. GR: Foce F. Ombrone; LI: Livorno:

LAZIO. RM: Roma (P.za Colonna); RI: Poggio Mirteto.

48.140.0. 021.0 *Ocypus* (*Tasgius*) *pedator* (Gravenhorst, 1802)

CATEGORIA COROLOGICA. S-europeo.

GEONEMIA ITALIANA. Italia continentale, Sicilia (143).

ECOLOGIA. Da planiziale a montano, praticolo, termofilo.

NOTE. Benchè Luigioni lo segnali anche della Sardegna, non ho mai visto esemplari di quest'isola. In Sicilia si trova la ssp. *siculus* (Aubè, 1842), ben caratterizzata per la diversa punteggiatura dell'addome.

PIEMONTE E VAL D'AOSTA. TO: dint. Torino; AL: Spinetta Marengo!; Ovada; Arquata Scrivia; Strevi; Serravalle Scrivia; Voltaggio; CN: Pezzolo Valle Uzzone.

LIGURIA. GE: Genova; Voltri; Cogoleto; Molassana; Sant. Vittoria; M. Fasce; Casella; IM: Oneglia; San Remo; Bussana; Nava; SP: Monterosso al Mare; Ameglia; SV: Laigueglia.

LOMBARDIA. MI: Greco (Milano); Ceriano Laghetto; BS: Brescia; CO: Nesso!; PV: Zavattarello!; VA: Venegono; Arcisate; SO: Dazio.

VENETO. VE: Punta Sabbioni; VR: Cancello; Avesa; S. Floriano; Torri Benaco.

FRIULI VENEZIA GIULIA. TS: Trieste; PN: Pordenone; Giais.

EMILIA ROMAGNA. BO: S. Luca (Bologna); FE: S. Giuseppe (Comacchio); FO: Balze; PR: Parma; RA: Lido Adriano; Marina Romea; Brisighella.

TOSCANA. FI: Firenze; M. Morello; M. Calvana; Pietramala; Badia della Valle (Marradi); GR: Alberese; Massa Marittima; Arcidosso; Is. Giglio; LI: Is. Elba; Is. Capraia!; LU: Viareggio; MS: P.so del Cerreto; PI: Pisa; SI: M. Cetona.

MARCHE E UMBRIA. MC: Macerata; Bolognola; PS: M. Nerone; PG: Perugia; L. Trasimeno; Valtopina; Spoleto.

LAZIO. RM: Roma (Montesacro; Acquacetosa; Grottarossa; Caffarella; Parioli); La Storta; Acilia; Fiumicino; Nettuno; Albano; Bracciano; Marino; Trevignano; Riofreddo; Bagni di Tivoli; Olevano Romano; LT: Cisterna; Norma; Bassiano; Circeo; M. Viglio; RI: Rieti; Poggio Mirteto; M. Terminillo.

ABRUZZO E MOLISE. AQ: Pescasseroli; Barrea; CH: Vacri; M. Maielletta; TE: Castelli; IS: Montenero Valcocchiara.

PUGLIA. BA: Impalata; BR: Francavilla Fontana; Carovigno; Torre Canne; FG: Incoronata (Foggia)!; S. Giovanni Rotondo; Is. Pianosa; Is. Capperaia; LE: Otranto; L. Alimini; TA: Palagiano.

CAMPANIA. NA: Vomero (Napoli); SA: Atena Lucana; Capitello; Vallo della Lucania.

CALABRIA E BASILICATA. CS: Pian Ruggio (Pollino); RC: Arasì.

SICILIA. PA: Palermo; Mondello; Piano Battaglia; Gratteri; Gibilmanna; Pian Zucchi; M. Cucullo; M. Carbonara; M. Mufara; AG: Racalmuto; CL: Vallelunga Pratameno; EN: L. di Pergusa; ME: M. Poverello; S. Fratello; Cesarò; Biviere di Cesarò; Floresta; Mistretta; SR: Melilli; Villasmundo; Lentini; Megara Hyblaea (Augusta); TP: Segesta; Is. Marettimo.

48.140.0. 024.0 *Ocypus* (*Tasgius*) *planipennis* (Aubé, 1842)

CATEGORIA COROLOGICA. W-mediterraneo.

GEONEMIA ITALIANA. Sardegna (4).

ECOLOGIA. Ignota

NOTE. Luigioni e Porta segnalano la specie della Sicilia. Gli unici esemplari italiani che ho visto personalmente sono tutti di provenienza sarda, ma non si può escludere che essa si trovi realmente in entrambe le isole.

SARDEGNA. CA: Cagliari; Elmas; Stagno di Maracalagonis; Quartu; Suelli; OR: Uras.

48.140.0. 008.0 *Ocypus* (*Alapsodus*) *compressus* (Marsham, 1802)

CATEGORIA COROLOGICA. Europeo.

GEONEMIA ITALIANA. Tutta Italia (111).

ECOLOGIA. Da planiziale a montano (0-1300 m), euriecio.

NOTE. La forma nominale di questa specie è reperibile, a differenza di quanto riportato da Luigioni e Porta, solo nelle regioni orientali, generalmente (ma non solo) nelle zone montane. In tutto il paese, comprese gran parte delle Alpi, si trova solo la ssp. *cerdo* (Erichson, 1840).

PIEMONTE E VAL D'AOSTA. TO: Locana; AL: Novi Ligure; NO: Finero; Macugnaga; Varzo!; VC: V. Chiobbia (V. Cervo); Biella!; Oropa!; Graglia; Alagna; Sostegno; AO: Gressoney.

LIGURIA. GE: Genova (Righi; Borzoli); Arenzano; Sant. Vittoria; Casella; Rapallo; Fontanegli; M. Montarlone (Fontanigorda); IM: Nava; SV: Laigueglia; M. S. Giorgio; Alpicella; M. Beigua; Calizzano.

LOMBARDIA. MI: Bernate Ticino!; BG: Endine Gaiano; Solto Collina; P.so del Vivione; BS: M. Orfano (Rovato)!; CO: Brunate; MN: Bosco Fontana (Marmirolo); PV: Pavia (Bosco G. Negri)!; M. Pietra Corva (Romagnese)!; P.so del Brallo; VA: Arcisate; Gaggiolo.

TRENTINO ALTO ADIGE. BZ: Bozen (Bolzano) (1); Oberbozen (Soprabolzano); Brixen (Bressanone) (1); Fennberg (Favogna); Montiggler Seen (L. di Monticolo); TN: Andalo; Tione; Valfredda (Ala) (4); Pomarolo; L. di Cei; Smarano; Sfruz;

VENETO. VE: S. Nicolò; Lido; S. Erasmo; Murano; BL: California; VR: Avesa; Cancello; Dosso S. Marco (Malcesine).

FRIULI VENEZIA GIULIA. TS: Trieste; Sistiana; Opicina; Miramare; UD: Belvedere di Grado; Arta Terme.

EMILIA ROMAGNA. BO: Monzuno; L. di Brasimone; FE: Ferrara; Pontelagoscuro; Oasi Campotto (Argenta); FO: la Lama; Balze!; MO: Modena; PC: Sarmato!; Piozzano!; PR: Parco Fluviale Stirone!; M. Molinatico; RA: Brisighella.

TOSCANA. FI: Firenze; Fiesole; Marradi; Badia della Valle (Marradi); M. Faggiola; Vallombrosa; AR: Alpe della Luna; Pietramigliarina; GR: Poggio Cavallo; PT: Montecatini; Capraia.

MARCHE E UMBRIA. AP: Grottammare; MC: Fiuminata; PG: Valtopina; S. Giustino.

LAZIO. RM: Roma (Appia Antica); Albano; Marino; Riofreddo; Gerano; S. Marinella; LT: M. Viglio; dint. Norma; M. Semprevisa; RI: Capricchia (M. della Laga).

ABRUZZO E MOLISE. AQ: Pratola Peligna; Castel di Sangro; PE: Lettomanoppello.

PUGLIA. BA: Impalata; BR: Torre Canne; Mesagne; LE: Castro Marina.

CAMPANIA. CE: Lago del Matese; SA: Bosco Centaurino (Sanza); S. Severino (Centola); M. Sacro; Paestum.

CALABRIA E BASILICATA. CZ: Colle Morrone (Serra S. Bruno); CS: L. dei Due Uomini (Fagnano Castello); La Sila; Cetraro; Colloreto (Pollino); RC: Gambarie; MT: Policoro.

SICILIA. ME: Foresta Malabotta (Floresta); SR: Pachino.

SARDEGNA. CA: dint. Cagliari; NU: Stagno di Bara!; SS: Golfo Aranci; Alghero.

48.140.0. 010.0 *Ocypus* (*Alapsodus*) *falcifer* (Nordmann, 1837)

CATEGORIA COROLOGICA. S-europeo.

GEONEMIA ITALIANA. Tutta Italia (129).

ECOLOGIA. Da planiziale a montano (0-1300 m), praticolo.

NOTE. Luigioni e Porta non citano la specie per le regioni Nordorientali; ad est del fiume Piave ho potuto vedere solamente un ex cartellinato "Friuli". In Sicilia, o almeno in parte di essa, si trova la ssp. *aliquoi* (Bordoni, 1975).

PIEMONTE E VAL D'AOSTA. TO: Torino; Colle della Maddalena; Procaria; Locana; AL: Spinetta Marengo!; Novi Ligure!; Sarezzano; Borgoratto; CN: Caramagna; NO: Fontaneto d'Agogna.

LIGURIA. GE: Genova; Busalla; S. Ilario Lig.; Rapallo; Casella; M. Becco; SP: Ameglia.

LOMBARDIA. MI: Milano; Sesto S. Giovanni; Senago; Correzzana; Desio; Monza; Besana Brianza; BG: Bergamo; Torre dei Roveri; Torre Pallavicina!; BS: Rodengo!; Gussago!; CO: Brivio; Cascina Bracchi (Casatenovo); L. di Sartirana (Merate); MN: Quistello; Bosco Fontana (Marmirolo); PV: Corvini S. Quirico; Bagnaria; M. Pietra Corva (Romagnese)!; SO: Berbenno; VA: Comabbio!; Venegono; Campo dei Fiori.

TRENTINO ALTO ADIGE. TN: S. Leonardo (Avio) (4).

VENETO. VE: Venezia; Marghera; Fusina; Marcon; BL: Cortina; PD: Padova; TV: Montello; Ponzano; VI: Vicenza; VR: Grezzana; S. Floriano; Roverè; Castagnè; Malcesine.

FRIULI VENEZIA GIULIA. Friuli.

EMILIA ROMAGNA. BO: Bologna città; Mazzolara; Monte Calderaro!; FE: Ferrara; Filo; Oasi Campotto (Argenta); Foce Po di Volano; MO: Carpi; Sassuolo; Montegibbio; Nirano; PC: Piacenza; Sarmato!; Piozzano!; S. Agostino (Coli)!; PR: Parma; Fidenza; Felegara; RA: Ravenna; Marzeno; Brisighella.

TOSCANA. FI: Firenze; Sesto Fiorentino; Vallombrosa; AR: Anghiari; GR: Grosseto; Scarlino; M. Amiata; Tombolo (Orbetello); Alberese; Montemerano; LI: Livorno; PI: Pisa; Marina di Pisa.

MARCHE E UMBRIA. AN: Staffolo; AP: Grottammare; MC: Camerino; PG: Perugia; L. Trasimeno; Lippiano (Città di Castello); Vescia; Volperino.

LAZIO. RM: Roma (Acquacetosa; Farnesina; Ponte Galeria; Montesacro); Bufalotta; Lunghezza; Acilia; Maccarese; Nazzano; Tolfa; Cerveteri; Percile; LT: Lido di Latina; Cisterna; Ninfa; dint. Norma; RI: Poggio Mirteto; Cantalupo di Sabina.

ABRUZZO E MOLISE. AQ: L'Aquila; Roccaraso; PE: Montesilvano; Popoli; TE: Tortoreto; IS: S. Pietro Avellana.

CAMPANIA. SA: Campora.

PUGLIA. TA: Circummarpiccolo (Taranto).

CALABRIA E BASILICATA. CS: Mendicino; RC: Ciminà; PZ: Pietrapertosa; MT: Policoro.

SICILIA. PA: Piano Battaglietta; Piana degli Albanesi!; M. Maganoce; ME: Messina; Milazzo; M. Soro; SR: M. Lauro; TP: S. Ninfa.

SARDEGNA. SS: Tempio Pausania.

48.140.0. 013.0 *Ocypus* (*Alapsodus*) *globulifer* (Fourcroy, 1785)

CATEGORIA COROLOGICA. Europeo.

GEONEMIA ITALIANA. Tutta Italia (102).

ECOLOGIA. Da planiziale a montano, praticolo, termofilo.

NOTE. Questa specie, pur essendo presente quasi in tutto il paese, sembra essere quella a gravitazione più meridionale del gruppo. Gli esemplari della Sicilia e del sud apparterreb-

bero secondo Coiffait (1974) alla ssp. *sicanus*; in base al materiale da me esaminato tale forma si basa su caratteri quasi inapprezzabili.

PIEMONTE E VAL D'AOSTA. AL: Voltaggio.

LIGURIA. GE: Genova; Borzoli; Cogoleto; M. Fasce; Busalla; Casella; Marzano; IM: S. Remo; SP: Ameglia; SV: Carcare; M. Beigua.

LOMBARDIA. MI: Monza; BS: Brescia; CO: Casatenovo; Lanzo d'Intelvi; SO: Castellina (Sondrio).

VENETO. VE: S. Giuliano; Fusina; Casse di colmata (Fusina)!; Marghera; Punta Sabbioni; Malamocco; Mestre; BL: Feltre; Cansiglio; RO: Porto Tolle; VR: Avesa; Selva di Progno.

FRIULI VENEZIA GIULIA TS: Trieste; Sistiana; Duino; GO: Isola Morosini; Monfalcone; Grado.

EMILIA ROMAGNA. BO: Bologna; Rastignano; FE: Punta Boscoforte (Valli di Comacchio); Foce Po di Volano; FO: Forlì; Croce; Converselle; MO: Carpi!; PC: Gragnano Trebbiense!; PR: Felegara; RA: Ravenna; Pineta di S. Vitale; Porto Corsini; Faenza.

TOSCANA. FI: Firenze; Fiesole; M. Morello; M. Calvana; Badia della Valle (Marradi); AR: Anghiari; AR: Cortona; GR: Alberese; LI: Livorno; M. Capanne (Is. Elba)!; LU: Viareggio; MS: M. Tambura (Apuane); PI: Pisa; SI: Bettolle.

MARCHE E UMBRIA. AN: Senigallia; AP: Grottammare; PG: Perugia; Foligno.

LAZIO. RM: Roma (Foro Italico; Acquacetosa; Ponte Nomentana); Acilia; Maccarese; Ladispoli; Montelibretti!; Marino; Albano.

ABRUZZO E MOLISE. AQ: Castel di Sangro.

PUGLIA. BA: Gioia del Colle; BR: Torre Testa; Torre Canne; TA: Taranto.

CAMPANIA. NA: Agnano; SA: Pattano.

CALABRIA E BASILICATA. CZ: Sambiase; MT: Nova Siri; Bosco Pantano (Policoro) (3).

SICILIA. PA: Piano Battaglia; Portella di Misilmeri; Ficuzza; CL: Vallelunga Pratameno; ME: M. Soro; Ucria; Foresta Malabotta (Floresta); SR: M. Lauro; Palazzolo Acreide.

SARDEGNA. CA: Cagliari; Elmas; Stagno dei Molentargius; Assemini; M. Sette Fratelli; Selegas; S. Nicolò Gerrei; NU: Stagno di Bara!; Macomer; Seui.

48.140.0. 016.0 *Ocypus* (*Alapsodus*) *melanarius* (Heer, 1839)

CATEGORIA COROLOGICA. Europeo (introdotto in Nord America).

GEONEMIA ITALIANA. Alpi (5).

ECOLOGIA. Da planiziale a montano, praticolo.

NOTE. Specie molto marginale alla fauna italiana, presente con certezza solo in Pusteria e nelle Prealpi Biellesi; non è però escluso che essa sia maggiormente diffusa nella regione alpina. La località di S. Candido è tratta da un esemplare conservato al Museo di Roma (coll. Cerruti) etichettato "Trentino-Monte S. Candido". Poichè tale montagna è introvabile sulle carte, ho ritenuto verosimile che essa si riferisse a qualche monte nei dintorni dell'omonima cittadina. G. Müller (1923) la cita anche di Roditti, nel Carso triestino, località oggi politicamente slovena.

PIEMONTE E VAL D'AOSTA. VC: M. Marca; Alpe della Pissa (Oropa)!.

TRENTINO ALTO ADIGE. BZ: Niederdorf (Villabassa); Innichen (S. Candido); Sexten (Sesto) (1).

48.140.0. 028.0 *Ocypus* (*Alapsodus*) *tricinctus* (Aragona, 1830)

CATEGORIA COROLOGICA. Alpino appenninico.

GEONEMIA ITALIANA. Italia sett. e cent. (29).

ECOLOGIA. Submontano e montano (300-1500 m), silvicolo.

NOTE. Questo splendido endemismo non è diffuso solamente, come finora ritenuto, nell'Appennino centro-settentrionale, ma si trova anche nella regione Orobica, presentando quindi un'areale disgiunto.

PIEMONTE E VAL D'AOSTA. AL: Caldirola!; Figino (Albera L.); M. Ebro.

LIGURIA. GE: M. Antola; M. Penna; IM: Col di Nava; SV: M. Beigua; M. S. Giorgio; Melogno.

LOMBARDIA. BG: Caprino; Carona; Parzanica; BS; M. Selvapiana (Gavardo); Valporcino (Lumezzane); P.so Maniva; CO: Paderno d'Adda; PV: M. Lesima; M. Pietra Corva (Romagnese)!.

EMILIA ROMAGNA. BO: L. di Brasimone!; FO: Campigna; PC: Pei; P.so del Penice; S. Agostino (Coli)!; RE: Castelnuovo nè Monti.

TOSCANA. FI: M. Falterona!; Vallombrosa; Colla di Casaglia; M. Bruno; AR: Alpe della Luna; Sintigliano (Pieve S. Stefano); LU: M. Corchia (Stazzema)!; PT: Maresca.

MARCHE E UMBRIA. PG: Bocca Trabaria.

48.140.0. 029.0 *Ocypus* (*Alapsodus*) *winkleri* (Bernhauer, 1906)

CATEGORIA COROLOGICA. Europeo (introdotto in Nord America).

GEONEMIA ITALIANA. Tutta Italia (155).

ECOLOGIA. Da planiziale a montano, euriecio, igrofilo.

NOTE. Le conoscenze sulla distribuzione di questa specie, di *O. globulifer* e *O. melanarius* in Europa sono a tutt'oggi molto scarse, stante la grande confusione nomenclatoria al loro riguardo (peraltro definitivamente chiarita) e la stretta vicinanza morfologica (molte femmine sono di fatto indeterminabili). *O. winkleri* è diffuso in tutto il paese ma sembra essere più frequente nelle regioni settentrionali.

PIEMONTE E VAL D'AOSTA. TO: Torino; S. Ambrogio di Torino; AL: Spinetta Marengo!; Tortona; Sarezzano; Borgoratto; Piovera; AT: Asti; CN: Garessio; Ceva; NO: Casalbeltrame; Fontaneto d'Agogna; Premosello!; VC: Tavagliano; AO: Campo Laris (Champorcher).

LIGURIA. GE: Genova; Molassana; Casella; Crocefieschi; Chiavari; Carasco; IM: Porto Maurizio!; S. Remo; Bordighera; SP: Ameglia; SV: Sassello; Albenga; M. Beigua.

LOMBARDIA. MI: Milano (Greco); Settimo Mil.!; Monza; Besana Brianza; Gaggiano!; Zelo Buon Persico!; Bernate Ticino!; BG: Torre Pallavicina!; Valcava; S. Pellegrino; Endine Gaiano!; M. Sovere; BS: Brescia; CO: Como; Lipomo; Albate; Valmorea!; Ballabio Inf.; Cascina Bracchi (Casatenovo); Merate!; Cernusco Lom.!; L. di Annone; M. Bisbino; M. Generoso; Nesso!; Piano di Spagna (Gera Lario); CR: Cremona!; MN: Bosco Fontana (Marmirolo); PV: Pavia!; Spessa!; SO: Sondrio; Castellina (Sondrio); Triangia; Torre S. Maria; Villa di Tirano!; Gordona!; Somaggia; VA: Valcuvia; Inarzo!; Campo dei Fiori.

TRENTINO ALTO ADIGE. BZ: Brixen (Bressanone); Tils (Tiles); Vintl (Vandoies); St. Ulrich (Ortisei); Meran (Merano); Laas (Lasa)!; TN: Lodrone; Riva del Garda; Le Grave (Civezzano); L. Pudro (Vigalzano); S. Cristoforo (Caldonazzo); Levico; Nomi; Canazei; Fiera di Primiero.

VNENETO VE: Casse di colmata (Fusina)!; BL: Feltre; Cansiglio; PD: Monselice; TV: Treviso; VI: Vicenza; M. Summano; Chiampo; Monteviale; Cereda; VR: Cerea; Sona; Lugagnano; Sala (Isola della Scala); Mazzantica; Selva di Progno; Roverè; Cavallo di Novezza (M. Baldo).

FRIULI VENEZIA GIULIA. TS: S. Giovanni al Timavo; GO: Monfalcone; Isola Morosini; UD: Arta; Ravascletto.

EMILIA ROMAGNA. FE: Ferrara; S. Agostino; Argenta; PC: Borgonovo V. Tidone!; PR: Parma; RE: La Gabellina (P.so del Cerreto).

TOSCANA. FI: Firenze; Sesto Fiorentino; Vallombrosa; Badia della Valle (Marradi); M. Bruno; GR: Scarlino; LI: Livorno; Portoferraio; LU: Viareggio; PI: S. Rossore!.

MARCHE E UMBRIA. AN: Senigallia; MC: Macerata; PG: Foligno; Castelluccio (Norcia); L. Trasimeno; TR: L. di Piediluco.

LAZIO. RM: Roma (Ponte Nomentana); Acilia; Maccarese; La Storta; Camporosello (M. Lepini); L. di Bracciano; Marino; Vicovaro; Montelibretti!; M. della Tolfa; LT: Cisterna; Sermoneta; Terracina; RI: Illica!.

ABRUZZO E MOLISE. AQ: Gran Sasso; Pescasseroli; Tagliacozzo; Castel di Sangro; Pratola Peligna; Pietrasecca; CH: Maiella; PE: Pescara; Popoli!; TE: Pietracamela; CB: Campomarino; IS: Montenero Valcocchiara; S. Pietro Avellana.

PUGLIA. FG: Manfredonia (T. Candelaro; Palude Frattarolo); LE: Torre Lapillo.

CAMPANIA. NA: Napoli; S. Giorgio a Cremano; CE: foce F. Garigliano.

CALABRIA. E BASILICATA. CS: P.so dello Scalone; V. del Crati; RC: S. Eufemia d'Aspromonte; PZ: M. Vulture; MT: Policoro.

SICILIA. CL: Gela; ME: Foresta Malabotta (Floresta); Milazzo; SR: Pachino.

SARDEGNA. CA: Quartu S. Elena; Elmas; M. Cresia!; foce Flumendosa!; NU: Macomer; OR: Gonnosnò.

SPECIE DUBBIE

Platydracus meridionalis (Rosenhauer, 1847)

Luigioni (1929), forse riportando un vecchio dato di Bertolini, segnala questa specie per le Alpi Marittime. Un esemplare delle Alpi Marittime francesi si trova al Museo di Vienna. In effetti il modello di distribuzione finora noto di questo Stafilinide (Penisola Iberica e Francia meridionale) ricalca quello di molte specie animali dei più svariati gruppi zoologici che da ovest penetrano nella nostra regione fisica attraverso la Liguria di ponente. Tuttavia non avendo mai visto esemplari provenienti dalla Liguria non ritengo opportuno inserirlo fra le specie della fauna del nostro paese.

Staphylinus ruficornis Bernhauer, 1913

Lo status sistematico di questo taxon è ancora da definire: è infatti possibile che si tratti di un ibrido fra *S. cesareus* e *S. dimidiaticornis*, come ipotizzato da Müller (1932) che segnala questa specie di Merano. La gravitazione di questo Stafilinide sembra comunque essere più orientale (regione danubiana, Balcani, Caucaso).

Ocypus minax (Mulsant e Rey, 1861)

Luigioni e Porta segnalano questa specie per Piemonte, Liguria e Toscana. L'unico esemplare di questo Stafilinide che ho potuto vedere personalmente, di qualsiasi provenienza si trova nella mia collezione e proviene dal Monte Obiou, in Savoia. Credo che la specie viva in realtà solo in Francia, Belgio (Drugmand, 1996) e, forse, Spagna, ove è comunque assai rara. Anche le citazioni per la Boemïa sono dovute a errori di determinazione (Horion, 1965).

Ocypus macrocephalus (Gravenhorst, 1802)

Porta cita questa specie del Piemonte e della Venezia Tridentina. Anche Peez la riporta, su dati di Gredler, dell'Alto Adige (Val Passiria, dint. Merano), sospettando però un errore di determinazione. In base al cospicuo materiale da me esaminato, credo di poter escludere con sicurezza che *O. macrocephalus* viva nelle Alpi italiane (e molto probabilmente in tutte

le Alpi). Tutte le citazioni sono frutto di confusione con *O. alpestris* o altre specie di questo gruppo, la cui distribuzione è già stata chiarita recentemente (Pilon, 1995).

Ocypus (*Pseudocypus*) *fuscatus* (Gravenhorst, 1802)

Questa specie presenta una distribuzione molto ampia dall'Europa centrale (a ovest fino alla Gran Bretagna) al Lago Baikal, con una gravitazione decisamente settentrionale. Viene riportata genericamente anche per varie regioni del Norditalia (Luigioni, 1929; Porta, 1926) e Peez riferisce un'antica cattura di Gredler dei dintorni di Bolzano. Tuttavia non ho mai visto esemplari italiani di questa specie e ritengo che, almeno attualmente, la sua presenza in Italia sia estremamente improbabile.

Nuove sinonimie

Parabemus baderlei Scheerpeltz, 1947

Parabemus baderlei, descritto del Col di Tenda da Scheerpeltz (1947) su un singolo esemplare e mai più ritrovato (per quanto a me noto), altro non è che un esemplare melanico di *P. fossor*, in base all'esame del Tipo conservato al Museo di Vienna. Si tratta di una aberrazione molto rara, ma ho visto un'altro esemplare simile raccolto in Slovacchia. D'altra parte questa specie era stata tralasciata già nella recente "Checklist" (Ciceroni et al., 1995) e Coiffait (1974) la ricorda solo in una nota a piè di pagina. Posso quindi stabilire la sinonimia:

Parabemus baderlei Scheerpeltz, 1947 = *P. fossor* (Scopoli, 1773) **n. syn.**

Ocypus depolii G. Müller, 1924

Credo che questa specie, descritta su un esemplare unico dell'entrotroterra di Fiume (che quindi, a essere precisi, non apparterrebbe alla fauna italiana al giorno d'oggi), sia in realtà un sinonimo di *O. tenebricosus*. L'esame del Tipo (in cattivo stato di conservazione e privo dell'edeago), lascia ritenere che si tratti semplicemente di un esemplare di *O. tenebricosus* di dimensioni molto piccole. I caratteri riportati da Müller (1924) a distinzione da quest'ultimo, ossia maggior convessità del pronoto e punteggiatura più rada su tutto il corpo, sono in realtà poco evidenti, mentre l'edeago è, a detta dell'Autore triestino che non fornisce nè disegni nè descrizioni, pressochè uguale a quello di *O. tenebricosus*. Di quelle regioni (Istria e dint. di Trieste), d'altra parte, ho sempre visto solo abbondanti serie di *tenebricosus*, mentre *O. depolii* non è mai più stato ritrovato in seguito, per quanto a me noto. Solo Dvorak (1984) riporta la presenza di questa specie nella Serbia settentrionale, e fornisce anche i disegni dell'edeago, relativi a quegli esemplari. In realtà, proprio grazie ai disegni, si può notare che si tratta non già della specie in questione ma di *O. biharicus* (G. Müller), ampiamente diffuso nella regione balcanica. Propongo quindi la sinonimia:

Ocypus depolii G. Müller, 1924 = *O. tenebricosus* (Gravenhorst, 1846) **n. syn.**

Conclusioni

Complessivamente i dati faunistici coprono il territorio italiano in modo abbastanza soddisfacente. Meglio conosciute sono comunque le regioni settentrionali mentre al sud esistono ampie zone in cui i dati sono molto scarsi, o si concentrano in territori ristretti (spesso massicci montuosi), lasciando intere province pressocchè sconosciute. Tale fatto è assai evidente in regioni come la Campania, la Calabria, la Sicilia, ove, se si tolgono i dati

relativi ai distretti montuosi più noti e frequentati (Matese, Pollino, Sila, Nebrodi), le conoscenze sono davvero lacunose.

Tale situazione è probabilmente dovuta al fatto che le zone di pianura o collina vengono in genere ritenute poco interessanti dagli entomologi, sia perchè sono le più modificate e impoverite dal punto di vista naturalistico a opera dell'uomo, sia perchè sono raramente sede in cui cercare endemismi o altre specie interessanti per i collezionisti. Sta di fatto che alcune regioni fisiche caratterizzate da paesaggi agricoli piuttosto monotoni e da una certa povertà di ambienti naturali ben conservati (Monferrato, bassa pianura lombarda ed emiliana, pianura friulana, entroterra collinare di Marche e Abruzzo, altopiani interni della Sicilia) mostrano una povertà di dati rimarchevole, che contrasta nettamente con la ricchezza di segnalazioni fornita dai distretti montuosi ad esse vicini (Alpi Marittime, Alpi Orobie, Carnia, Maiella e Parco Nazionale d'Abruzzo, Madonie).

Per alcune grandi città (Milano, Torino, Genova, Trieste, Firenze, Roma) è riportato un gran numero di segnalazioni, nella maggior parte dei casi piuttosto vecchie; purtroppo bisogna notare che molte di queste segnalazioni sono oggi da considerarsi "storiche", in quanto la rapida espansione delle aree urbane negli ultimi decenni ha cancellato quegli habitat naturali un tempo presenti attorno alle città in cui era possibile trovare molte specie animali. Per contrasto è singolare notare la quasi totale mancanza di dati riguardo a molte città dell'Italia meridionale, anche assai grandi ed importanti (Napoli, Bari, Catania).

Bisogna osservare che la maggior parte dei musei naturalistici (e la quasi totaltà di quelli da me visitati per studio) sono concentrati al Nord, e benchè in molti di essi sia conservato abbondante materiale delle regioni meridionali, tale fatto ha di sicuro determinato una minor ricchezza di dati relativi al meridione del nostro paese.

Va d'altra parte sottolineato come un lavoro di questo genere fornisca, prima di tutto, una rappresentazione della intensità delle ricerche entomologiche nelle varie parti del nostro paese. Alcune specie, grandi, appariscenti e facilmente reperibili con cacce non specializzate, come ad esempio *Ocypus ophthalmicus*, *Ocypus olens* e in misura minore anche altre, sono presenti pressochè in tutto il paese; la loro distribuzione è quindi in realtà un'immagine piuttosto fedele di dove sono avvenute fino a oggi le raccolte entomologiche (con eccezione di quelle più specializzate) in Italia.

Credo comunque si possa dire che la copertura dell'intero territorio nazionale sia stata sufficiente a definire la distribuzione di questa Tribù di Stafilinidi.

CONSERVAZIONE

Negli ultimi tempi anche la fauna cosiddetta minore (anfibi, rettili, insetti, molluschi) ha ricevuto una maggiore attenzione dal punto di vista protezionistico, dopo che studiosi e semplici appassionati si sono resi conto che molte componenti di tale fauna si sono rarefatte nel corso degli ultimi decenni.

Per gli insetti questo discorso è particolarmente difficile da affrontare per almeno due motivi: è quasi impossibile avere delle valutazioni attendibili sulla consistenza numerica e la precisa distribuzione delle varie specie; è estremamente difficile conoscere le reali modificazioni di tale consistenza e distribuzione nel passato, anche solo recente, benchè non manchino tentativi in proposito (Turin e den Boer, 1988). Informazioni a tale riguardo sono alle

volte diffuse fra gli entomologi, ma sono sempre frutto di impressioni personali o di dati raccolti empiricamente, mai di una ricerca pianificata e volta a questo fine.

Questo capitolo è un tentativo di segnalare quali specie, all'interno del gruppo trattato, possono essere considerate "vulnerabili" e di particolare interesse in campo protezionistico, alla luce delle considerazioni che seguono.

Ritengo si possano prendere in considerazione quattro aspetti: le dimensioni dell'areale complessivo di ogni specie; la posizione delle popolazioni italiane all'interno dell'areale; la valenza ecologica di ciascuna specie e le sue capacità di dispersione; la maggiore o minore diffusione e stabilità delle tipologie ambientali scelte della specie.

In particolare la combinazione di questi ultimi due aspetti determina la diversa probabilità di sopravvivenza di un taxon, in quanto ci dice come esso risponderà alle modificazioni o alla distruzione degli ambienti da esso popolati, se è in grado di adattarsi ad habitat diversi e quanto sono diffusi sul territorio i "serbatoi naturali" da cui possono originare ricolonizzazioni di siti idonei (MacArthur e Wilson, 1967). Va quindi evidenziato che la protezione di una qualsiasi specie di insetto, in pratica, non può attuarsi in altro modo se non attraverso la conservazione dell'habitat in cui esso vive.

Tenuto conto di questi criteri, credo che possano essere segnalate le seguenti situazioni:

— *Parabemus fossor*. Di questa specie, che può essere considerata addirittura banale in tutta la regione alpina, esiste una piccolissima popolazione isolata sul massiccio del Pollino, a oltre 500 km dal margine meridionale dell'areale principale. Probabilmente questa popolazione vive in un'area di poche centinaia di ettari.

— *Staphylinus erythropterus*. Le popolazioni italiane sono situate all'estremo margine sud-occidentale dell'areale, peraltro assai vasto, di questa entità. Da noi si tratta di una specie stenotopa, microterma, legata a boschi ripariali o palustri (ontaneti, saliceti) con un buon grado di naturalità. La maggior parte delle popolazioni note sono probabilmente isolate fra loro. Questa specie è dotata di ali membranose ben sviluppate ma probabilmente non è in grado di volare.

— *Ocypus brunnipes*. Valgono in buona parte le considerazioni fatte per la specie precedente, rispetto alla quale sembra comunque essere più plastica e meno esigente. Di particolare interesse sono però le popolazioni appenniniche, isolate e molto localizzate. In questa specie le ali sono ridotte e non funzionali.

— *Ocypus solarii*. Si tratta di una specie silvicola e brachittera su cui richiamo l'attenzione solo per l'estensione molto ridotta dell'areale, a cavallo fra Italia e Francia; in tale regione comunque la copertura forestale è notevole e stabile (se non in aumento).

— *Ocypus aethiops*. In Italia si trova esclusivamente la ssp. *luigionii*, vivente in Sicilia. Si tratta di una razza stenotopa, silvicola, brachittera; il suo habitat è costituito dai boschi mesofili maturi delle catene montuose del nord dell'isola. Tali boschi sono stati fortemente falcidiati in passato e ricoprono oggi in Sicilia una superficie molto limitata.

— *Ocypus planipennis*. Pochissimo è noto sull'ecologia e la distribuzione di questa specie; da noi essa vive, probabilmente, solo nella Sardegna meridionale, ove è stata trovata soprattutto presso le lagune dolci e salmastre attorno a Cagliari. Se questo fosse davvero

il suo unico habitat si tratterebbe certamente di una delle specie più vulnerabili della fauna italiana.

RINGRAZIAMENTI

Sono numerose le persone che, in modi diversi, hanno contribuito alla realizzazione di questo catalogo. In primo luogo i responsabili e conservatori di tutti i Musei da me visitati, che mi hanno sempre facilitato nello studio delle collezioni museali. In particolare ricordo: Giorgio Alberti, Giampaolo Costa, Mauro Daccordi, Mauro Giachino, Carlo Leonardi, Roberto Pantaleoni, Mario Pavan, Maurizio Pavesi, Fabio Penati, Carlo Pesarini, Fausto Pesarini, Emanuele Piattella, Roberto Poggi, Enrico Ratti, Renato Regalin, Roberta Salmaso, Harald Schillhammer, Dante Vailati, Marco Valle, Vincenzo Vomero. Inoltre ringrazio tutti i colleghi, già menzionati nell'introduzione, che hanno messo a miá disposizione le proprie collezioni private. Infine desidero ricordare alcune persone che in vario modo (regalandomi materiale delle proprie raccolte, con pareri, consigli, appoggio logistico o altro ancora) mi hanno continuamente aiutato nel lavoro: Francesco Barbieri, Alessandro Ciceroni, Paride Dioli, Roberto Molinari, Dino Mondin, Riccardo Sciaky, Carlo Violani, Adriano Zanetti e Stefano Zoia.

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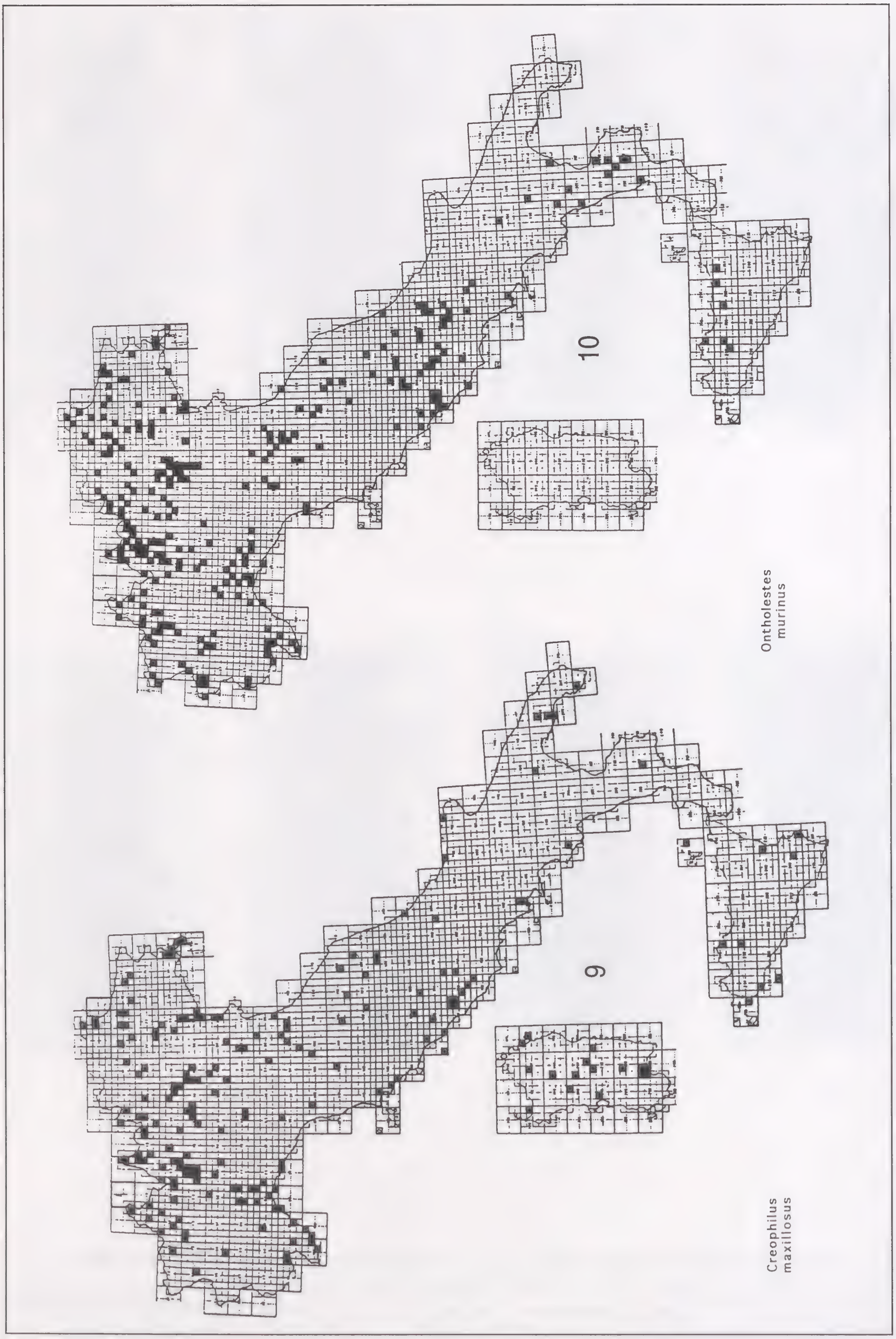
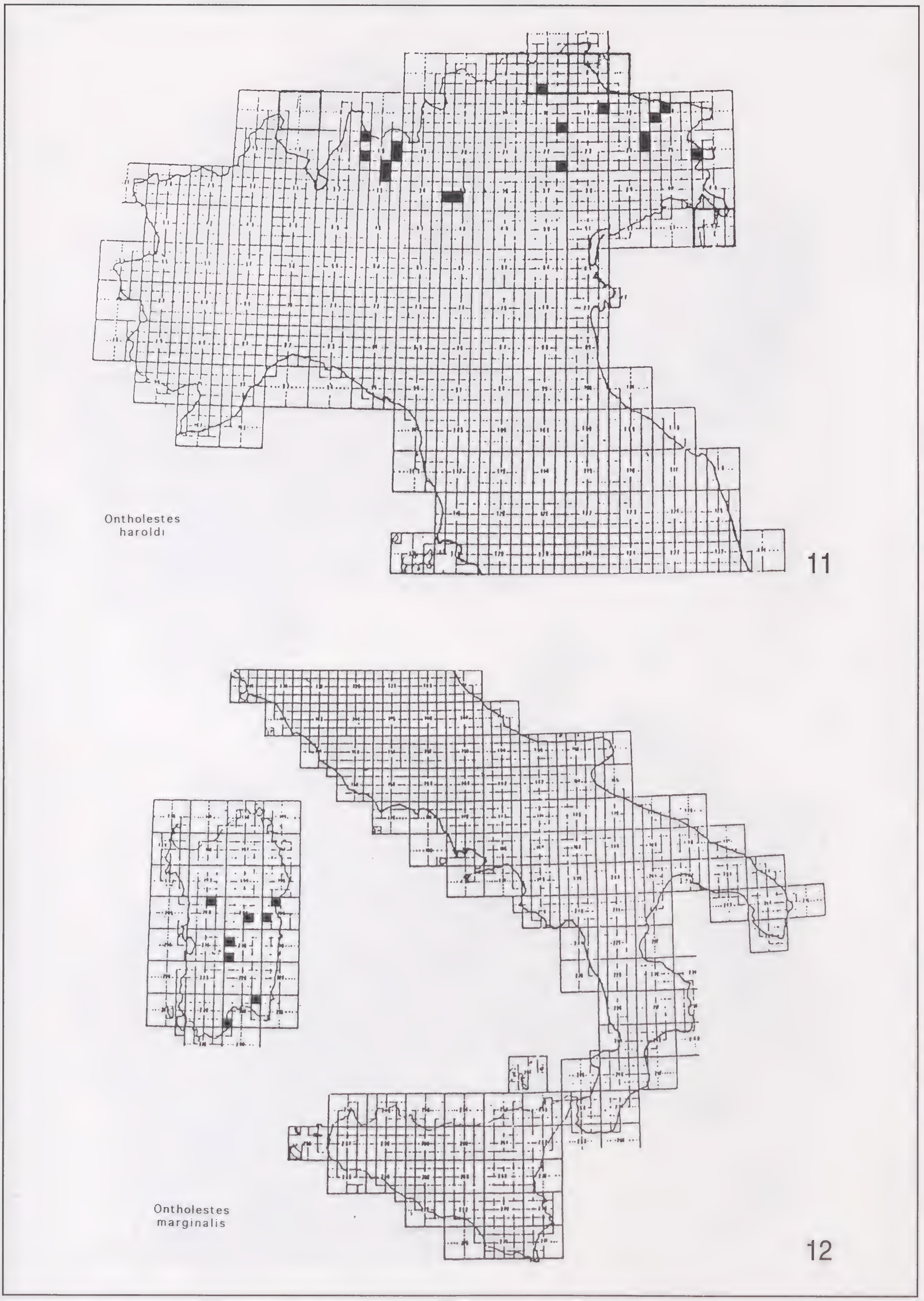
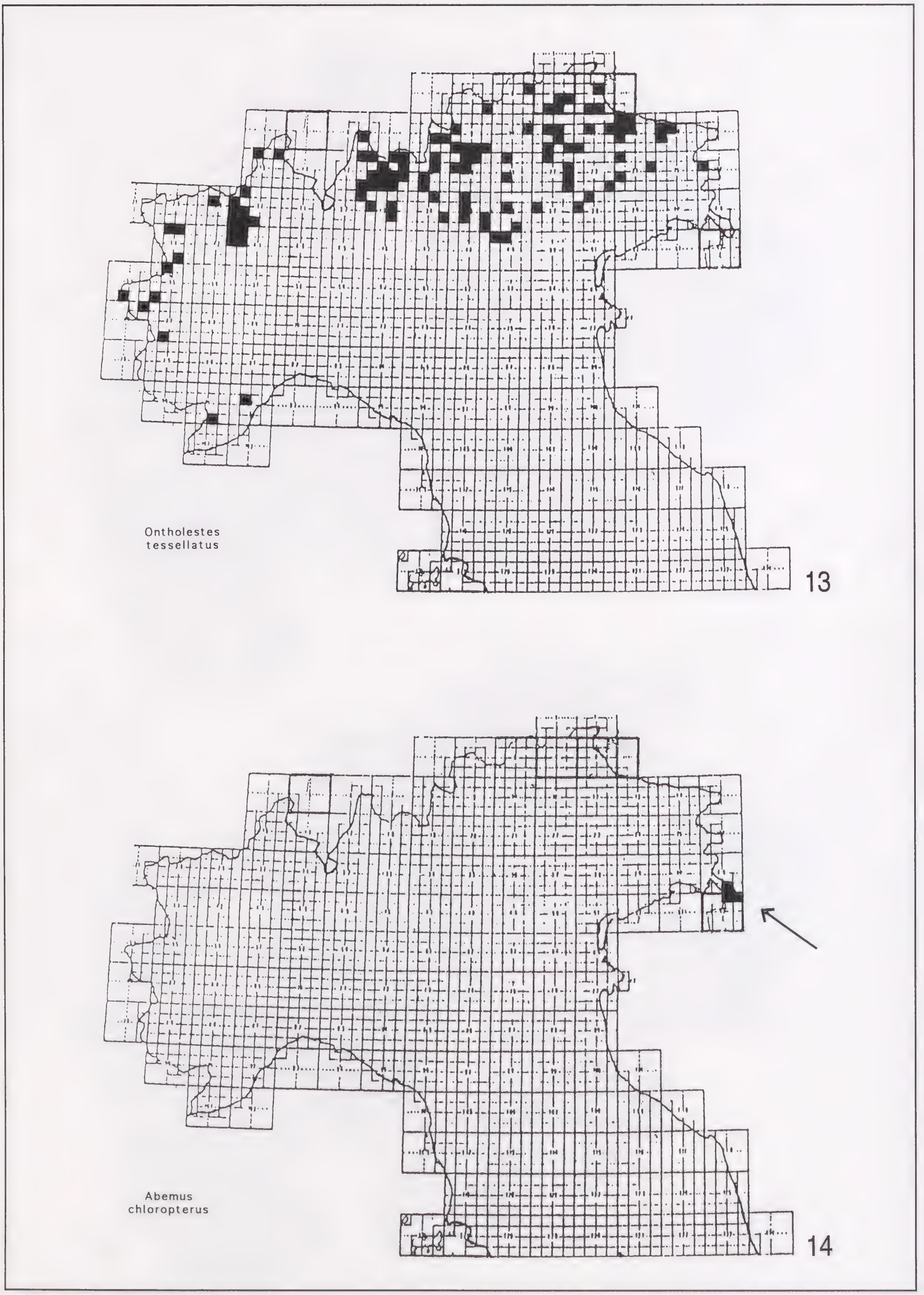
Fig. 1-8. 1: *Ontholestes tessellatus* di Scopello (VC); 2: *Platydracus stercorarius* di Biella; 3: *Staphylinus erythropterus* di Bernate Ticino (MI); 4: *Ocypus megalocephalus* di Concei (TN); 5: *Ocypus rhaeticus* di Carpugnino (NO); 6: *Ocypus fortunatarum* di Aritzo (NU); 7: *Ocypus pedator* dell'Isola di Capraia (LI); 8: *Ocypus tricinctus* del M. Falterona (FI) (foto S. Zoia).



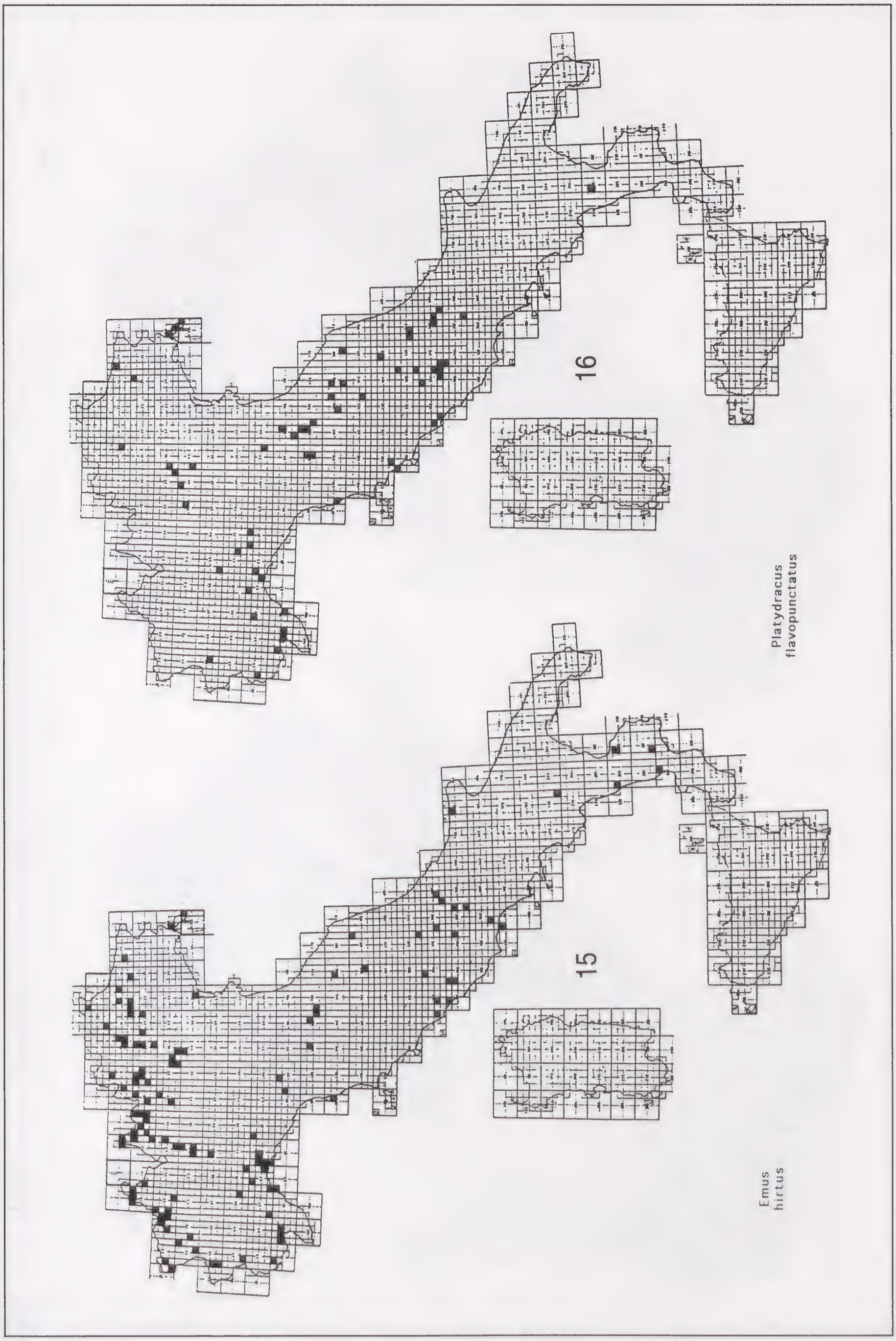
Figg. 9-10. Distribuzione in Italia di *Creophilus maxillosus* (9) e *Ontholestes murinus* (10).



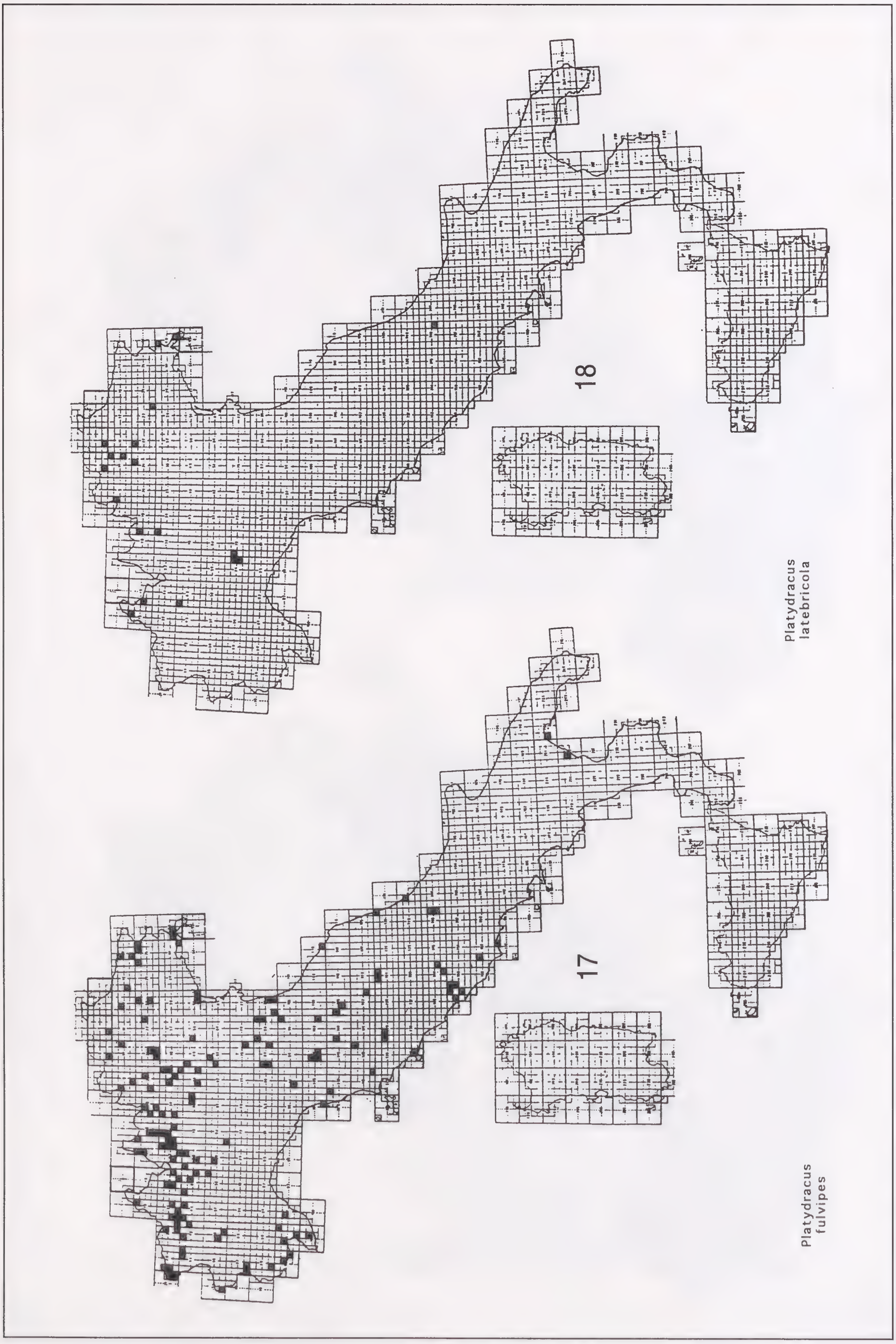
Figg. 11-12. Distribuzione in Italia di *Ontholestes haroldi* (11) e *Ontholestes marginalis* (12).



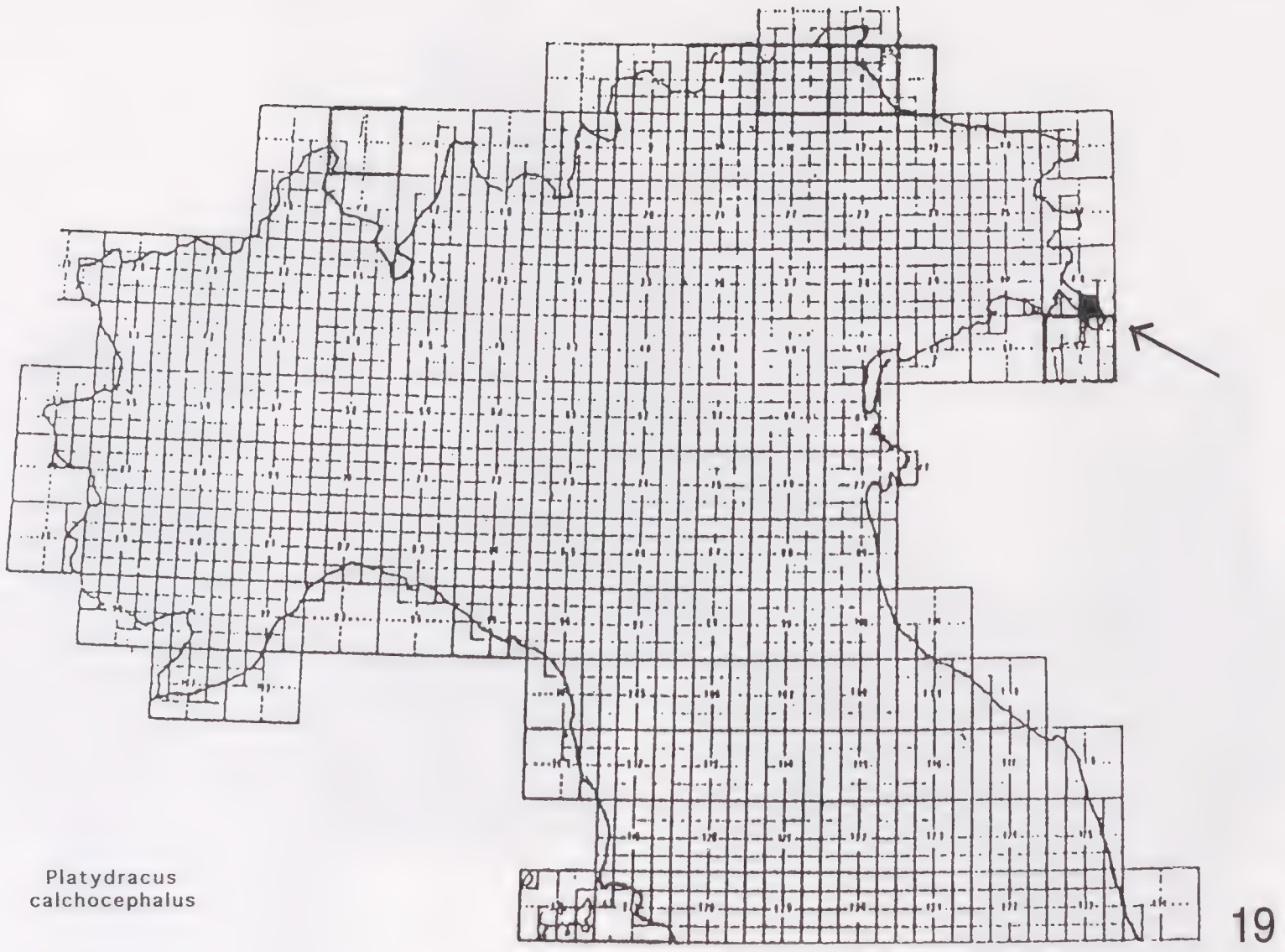
Figg. 13-14. Distribuzione in Italia di *Ontholestes tessellatus* (13) e *Abemus chloropterus* (14).



Figg. 15-16. Distribuzione in Italia di *Emus hirtus* (15) e *Platydracus flavopunctatus* (16).



Figg. 17-18. Distribuzione in Italia di *Platydracus fulvipes* (17) e *Platydracus latebricola* (18).



Platydracus
calchocephalus

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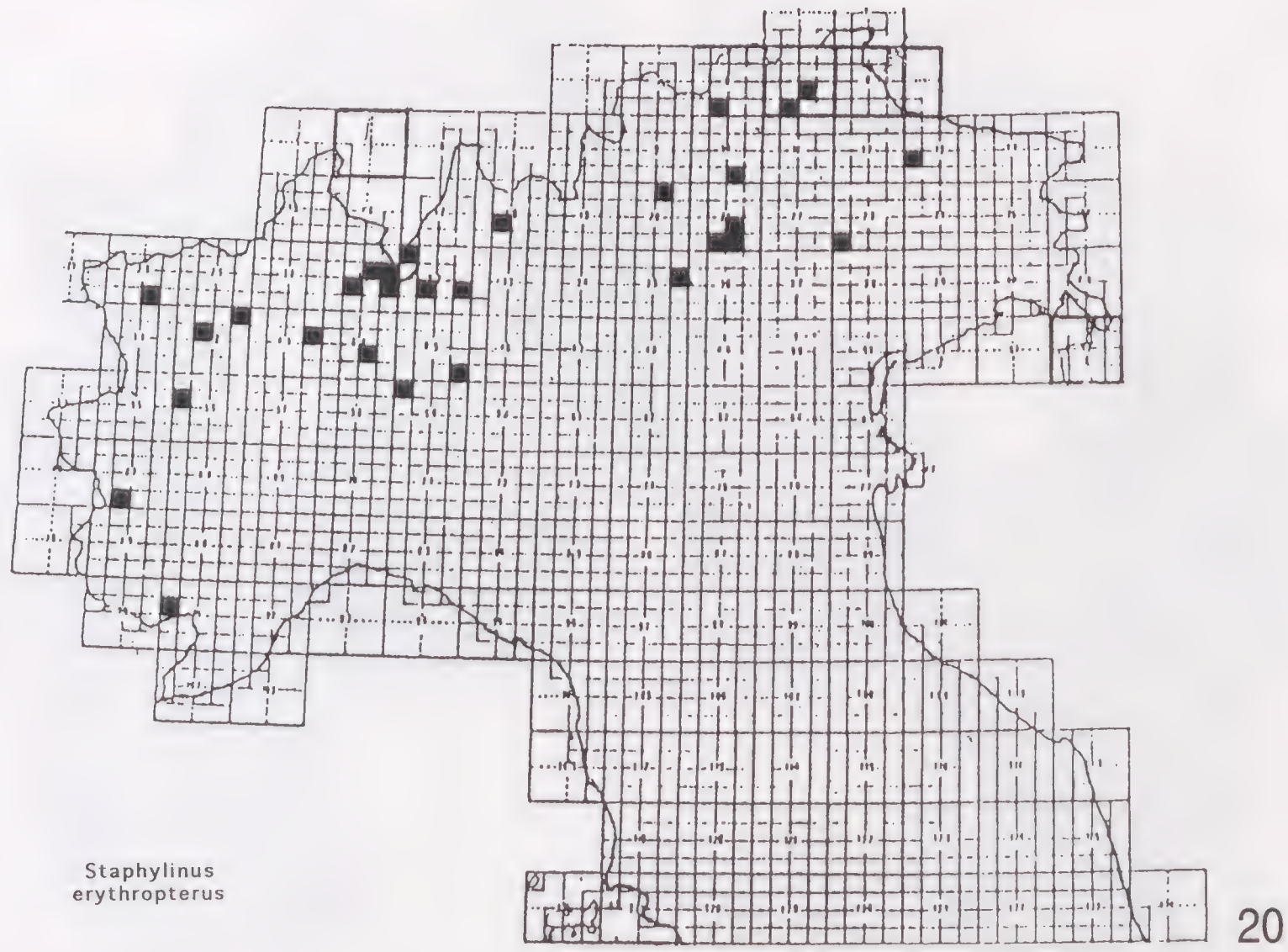

Staphylinus
erythropterus

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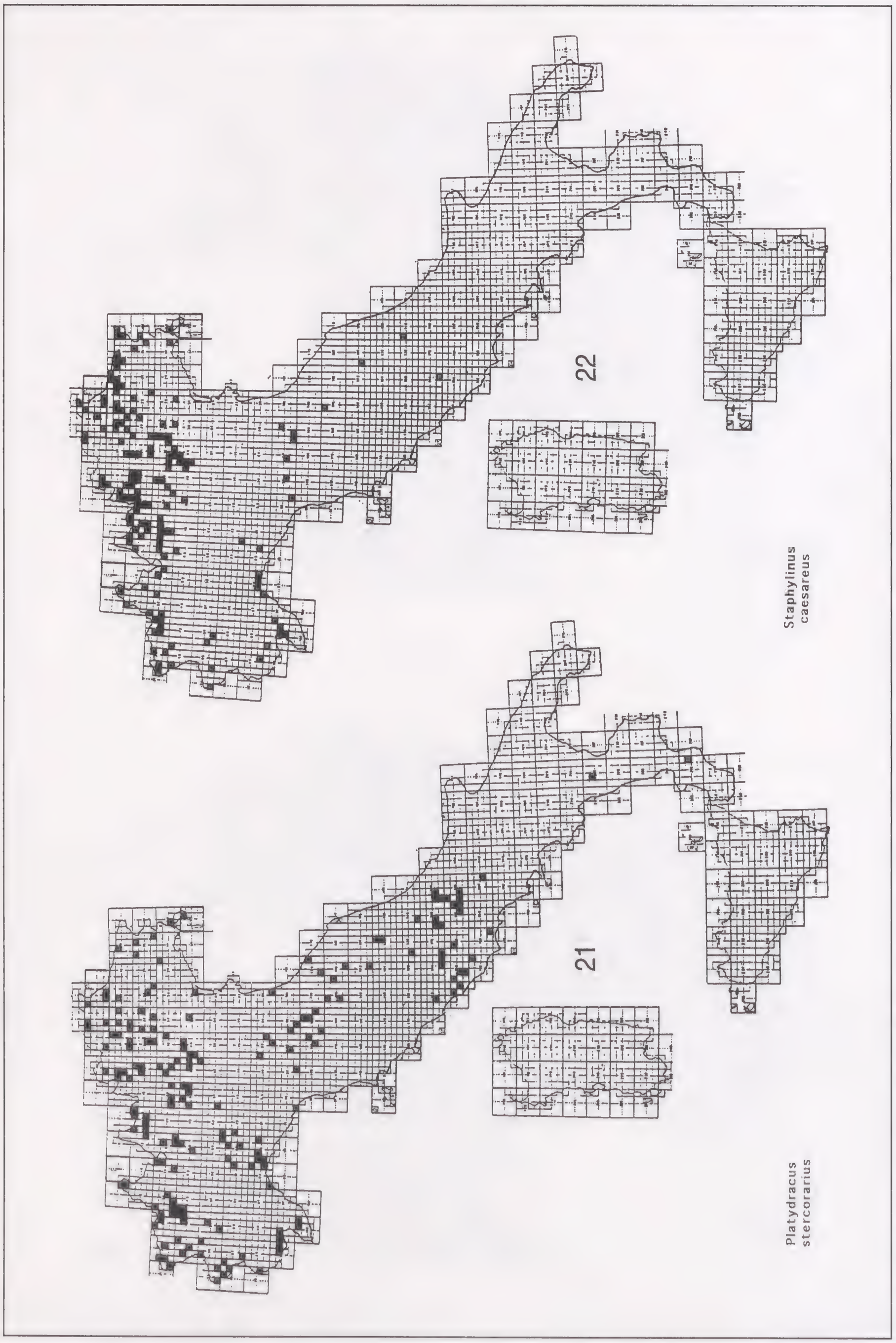
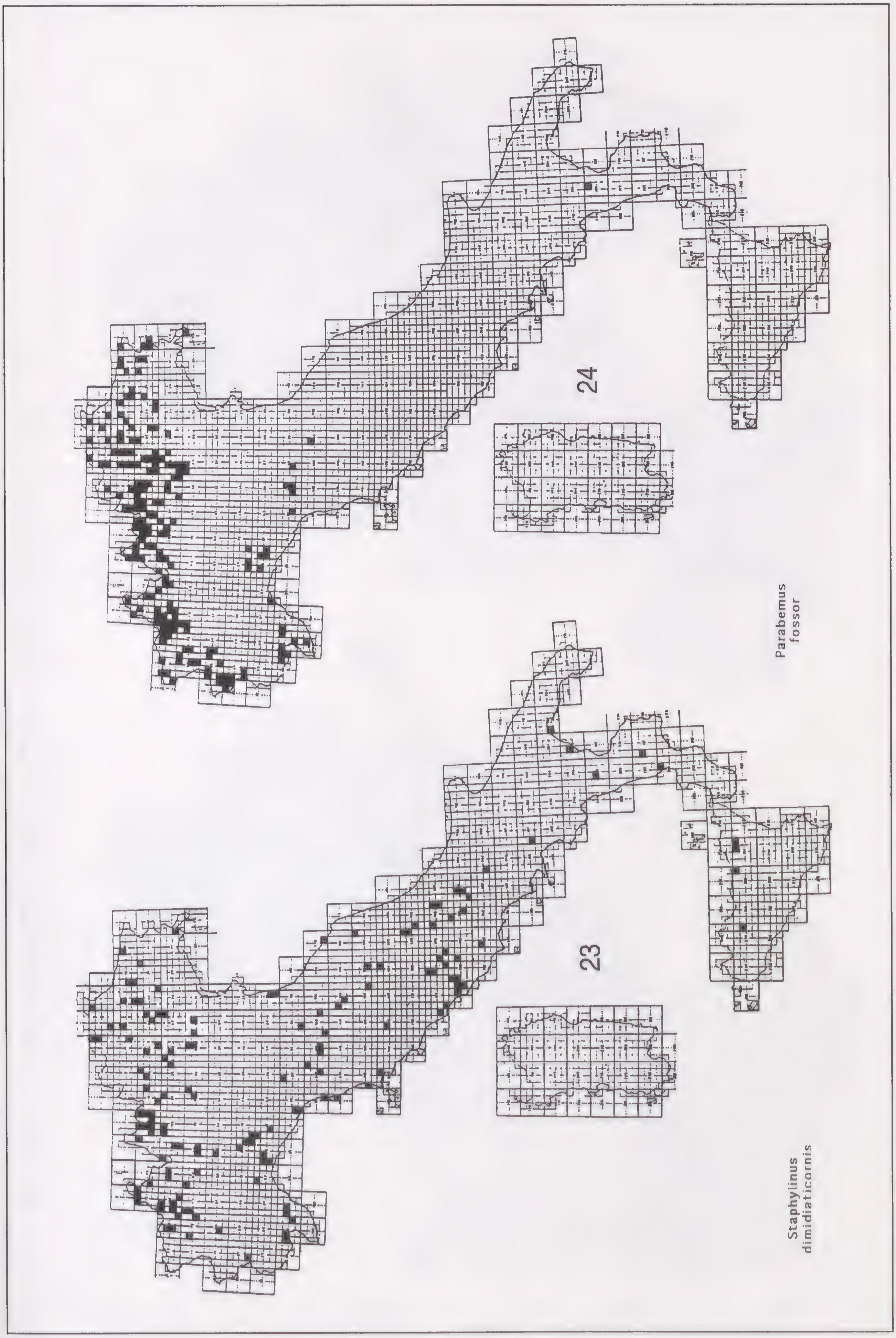
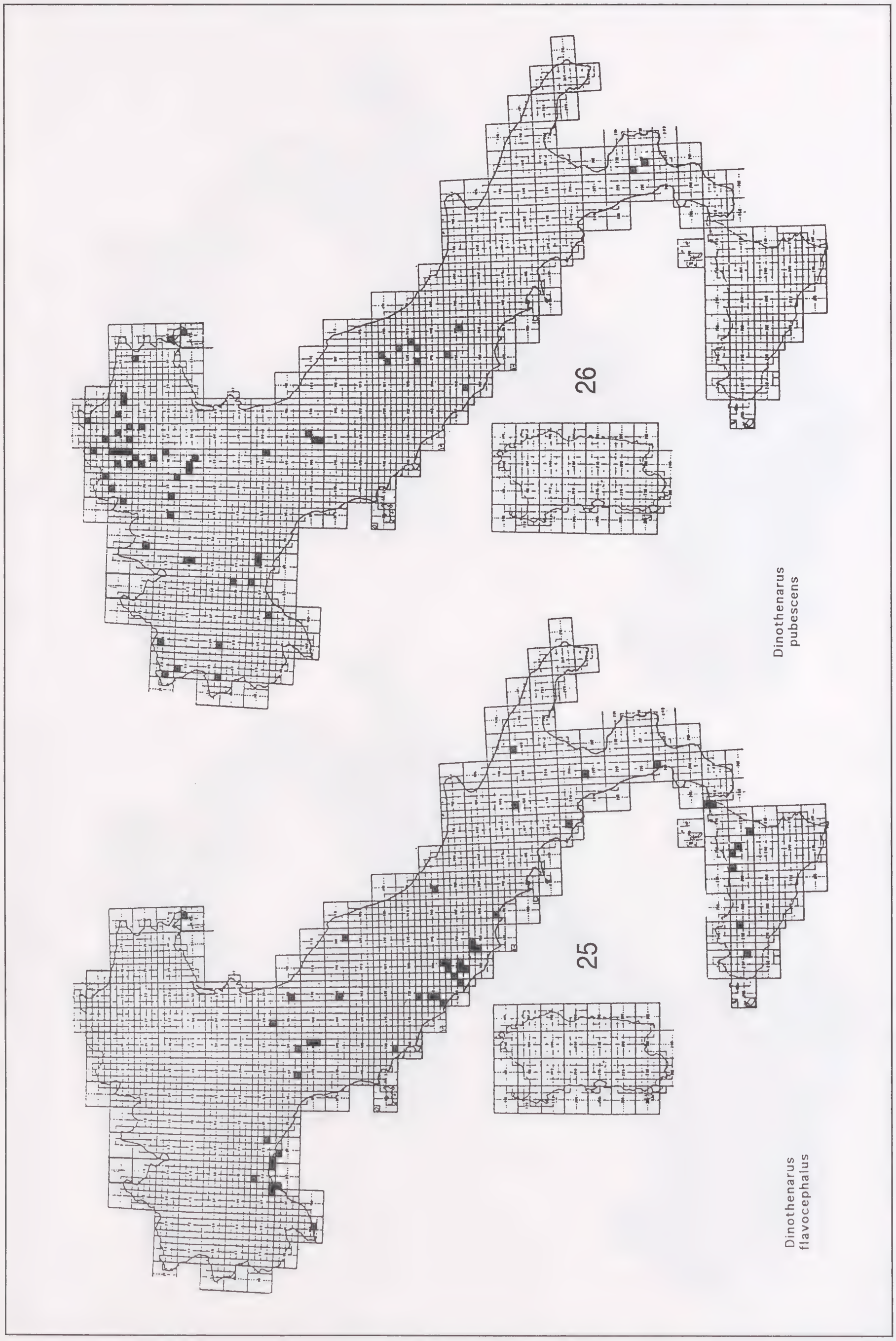
Figg. 19-20. Distribuzione in Italia di *Platydracus chalcocephalus* (19) e *Staphylinus erythropterus* (20).



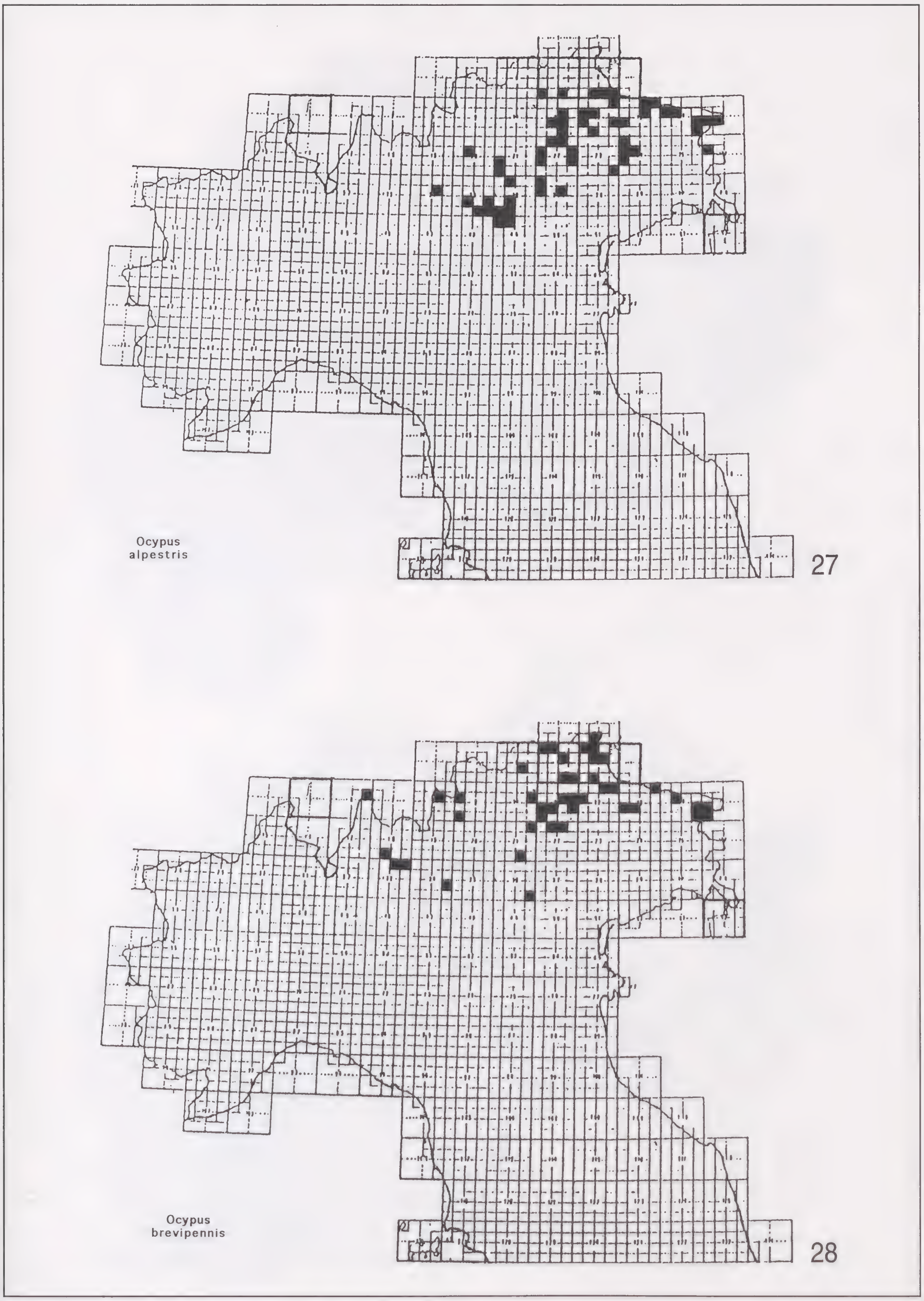
Figg. 21-22. Distribuzione in Italia di *Platydracus stercorarius* (21) e *Staphylinus caesareus* (22).



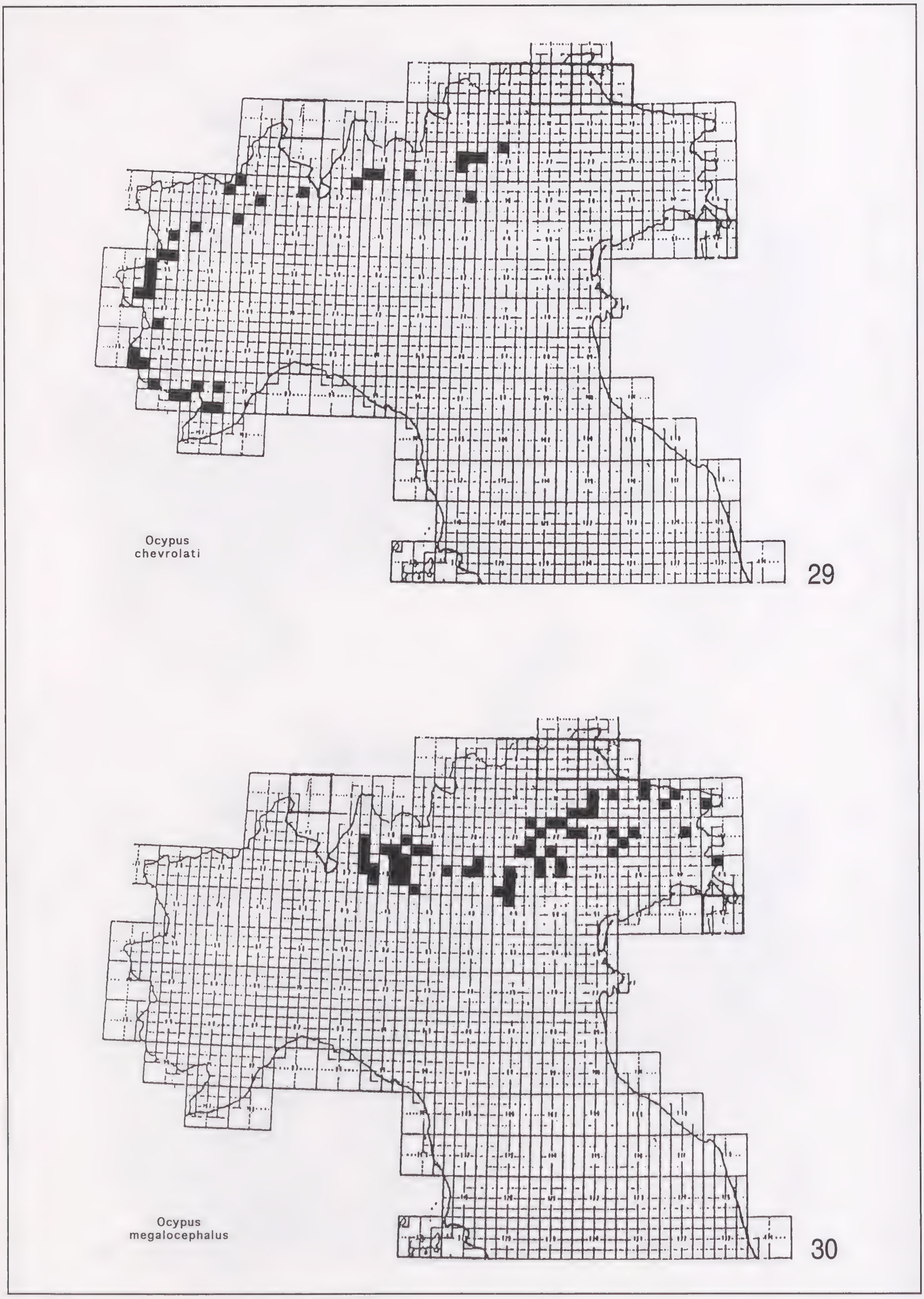
Figg. 23-24. Distribuzione in Italia di *Staphylinus dimidiaticornis* (23) e *Parabemus fossor* (24).



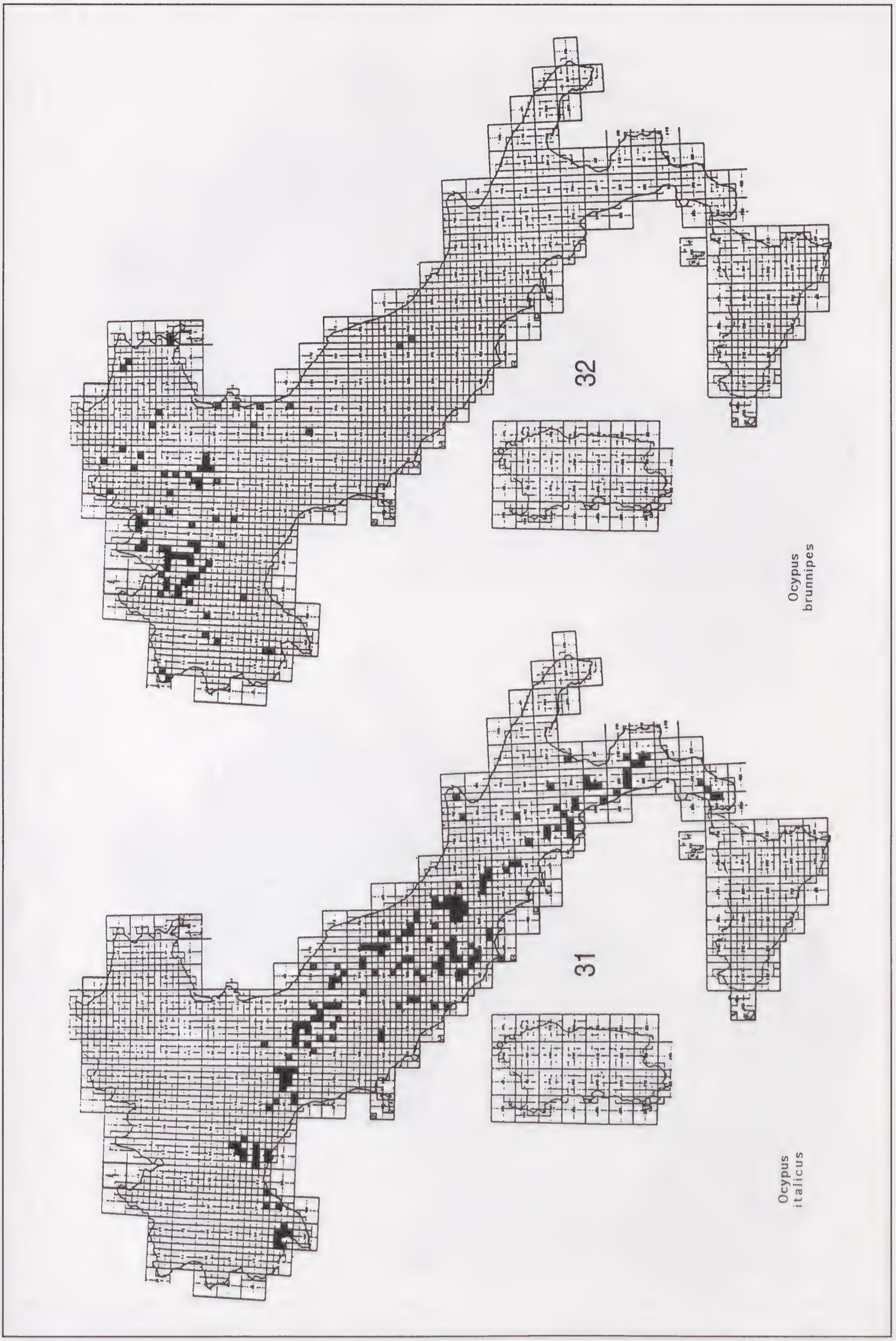
Figg. 25-26. Distribuzione in Italia di *Dinothenarus flavocephalus* (25) e *Dinothenarus pubescens* (26).



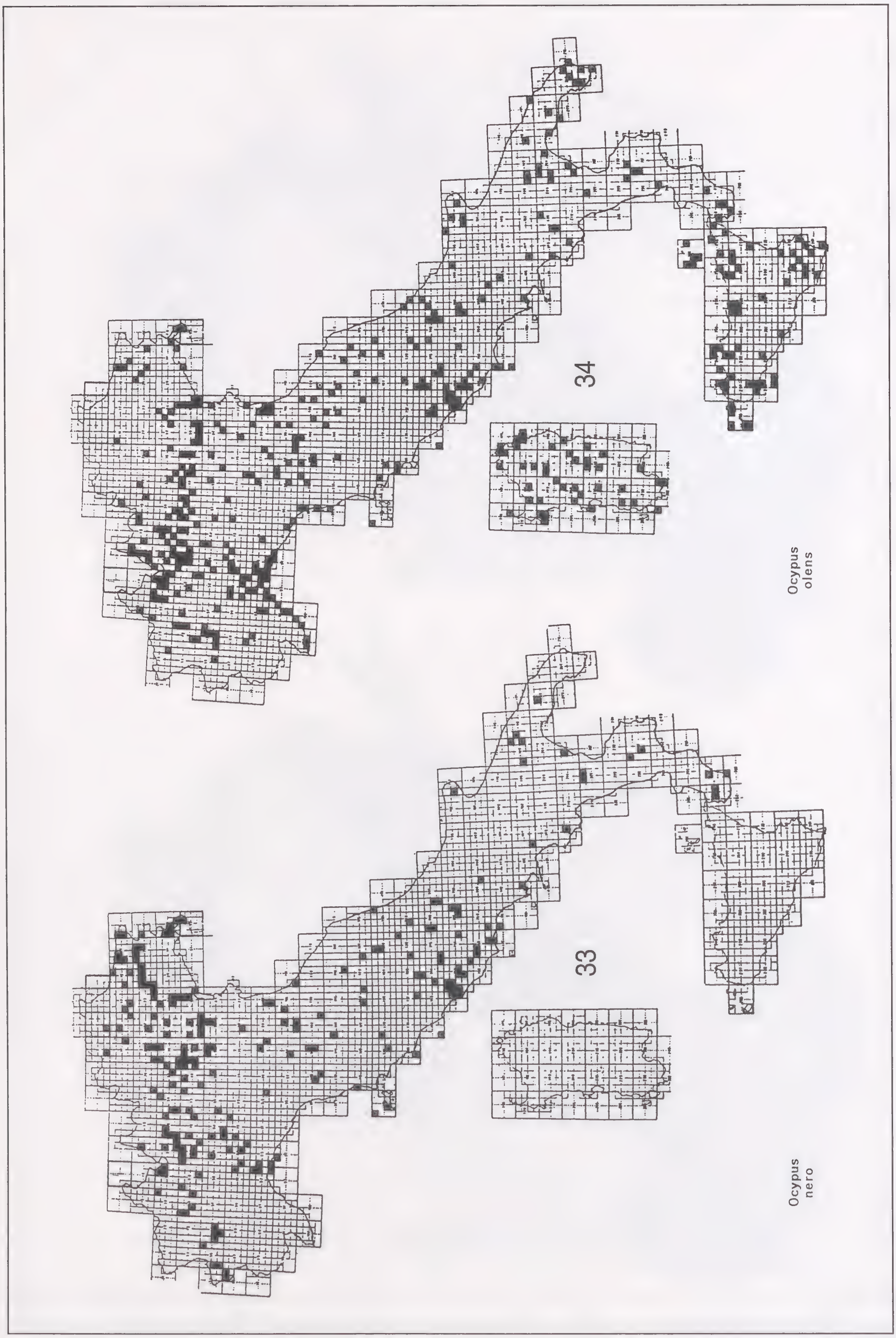
Figg. 27-28. Distribuzione in Italia di *Ocypus alpestris* (27) e *Ocypus brevipennis* (28).



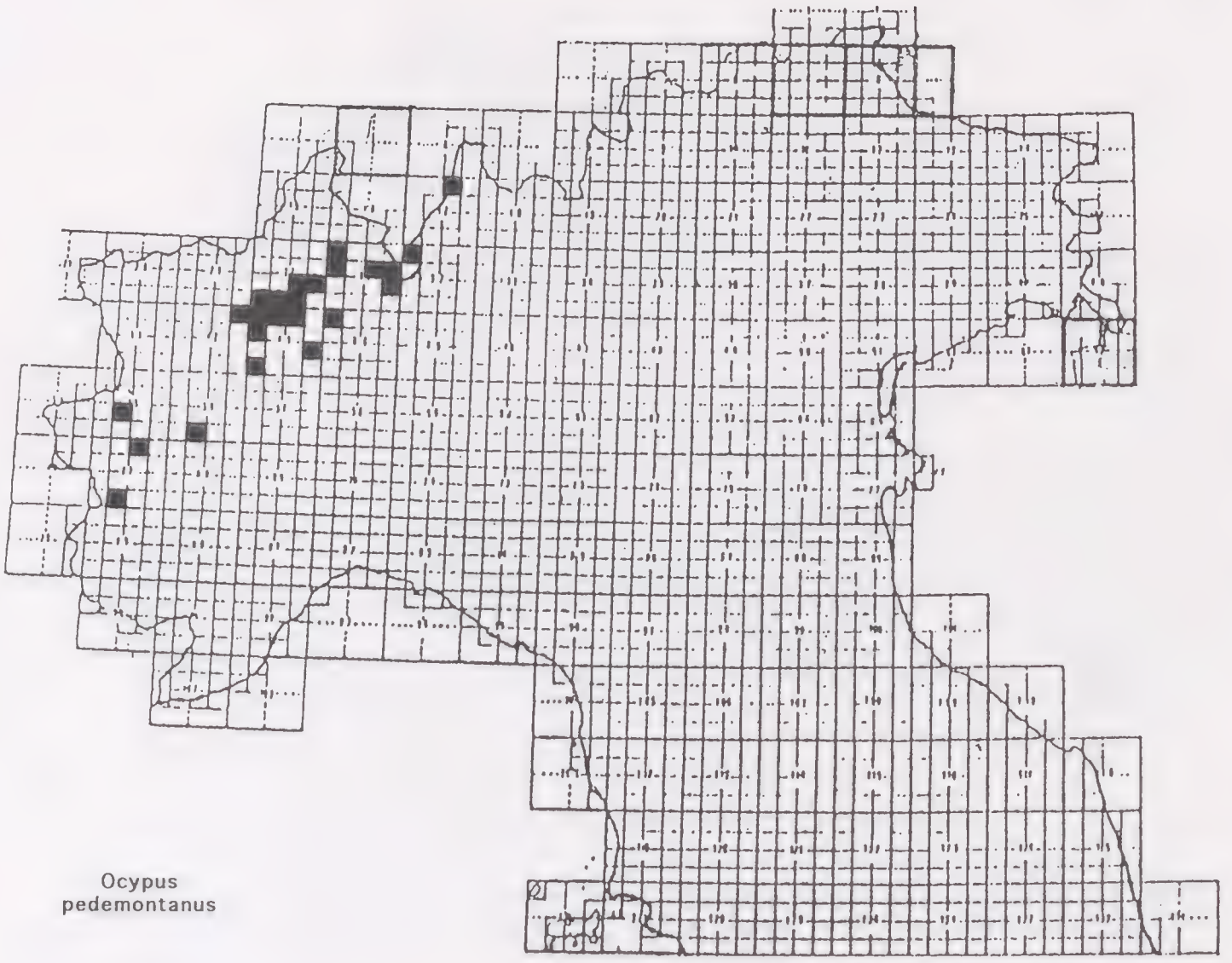
Figg. 29-30. Distribuzione in Italia di *Ocypus chevrolati* (29) e *Ocypus megalocephalus* (30).



Figg. 31-32. Distribuzione in Italia di *Ocypus brunnipes* (31) e *Ocypus italicus* (32).

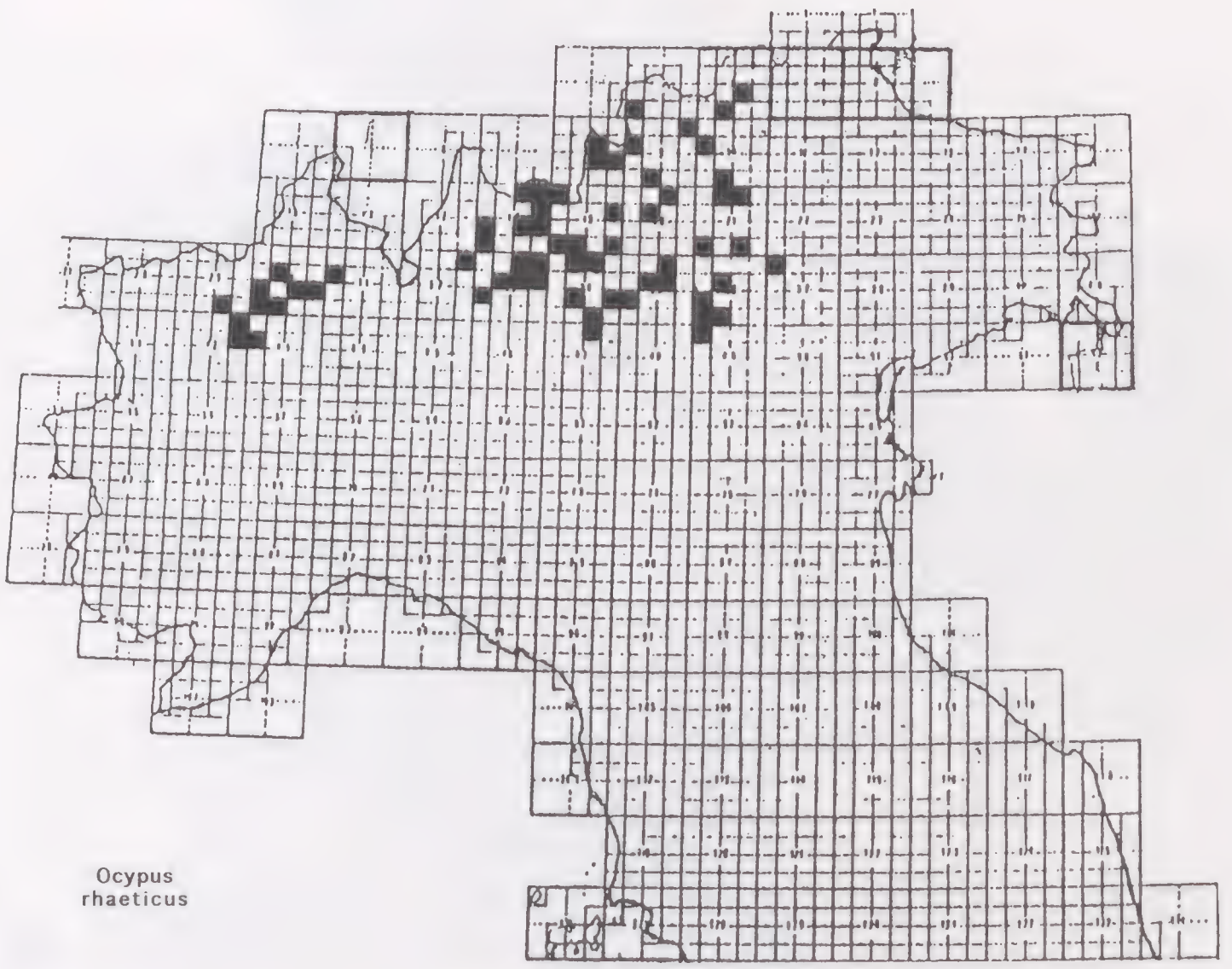


Figg. 33-34. Distribuzione in Italia di *Ocypus nero* (33) e *Ocypus olens* (34).



Ocypus
pedemontanus

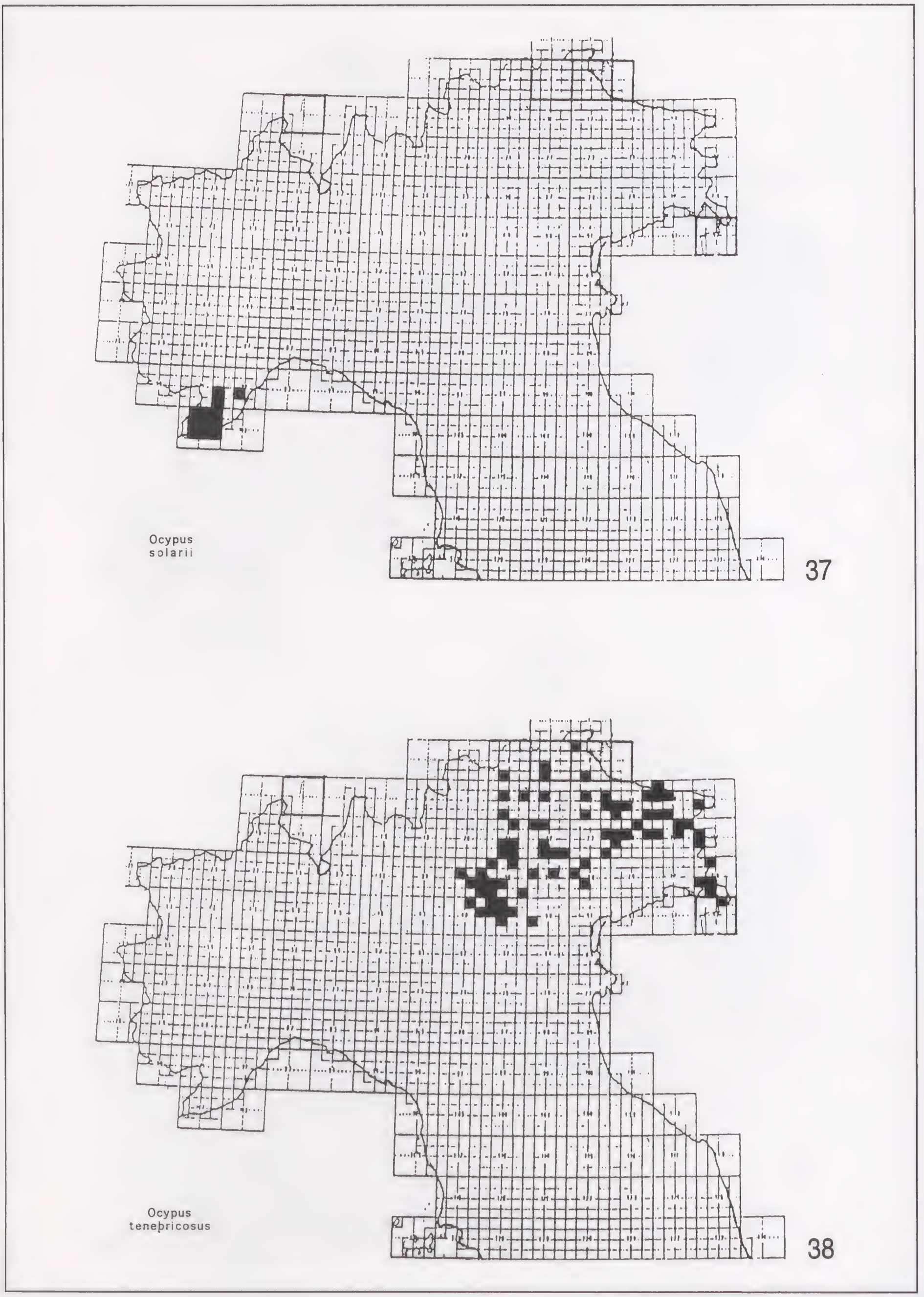
35



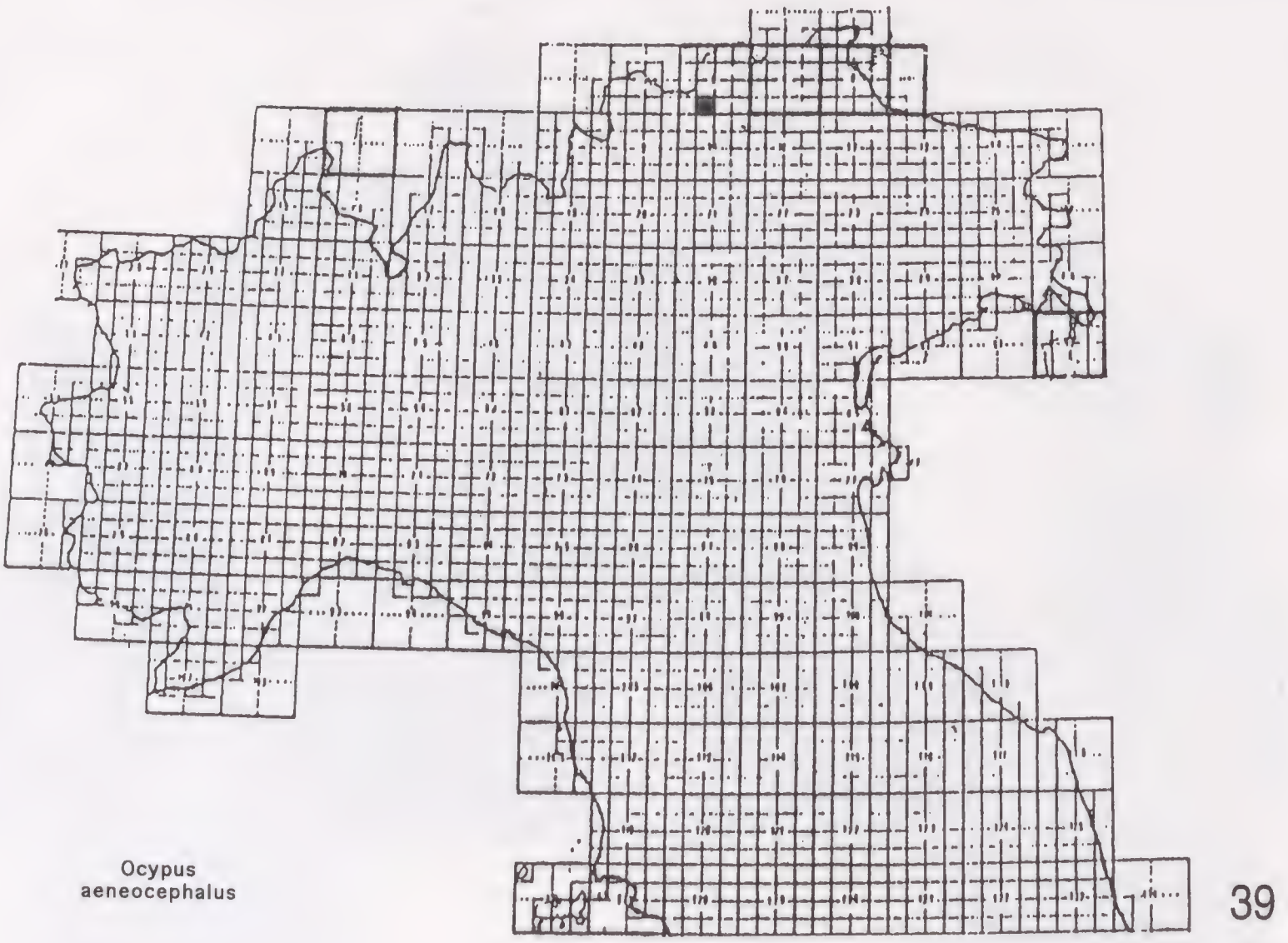
Ocypus
rhaeticus

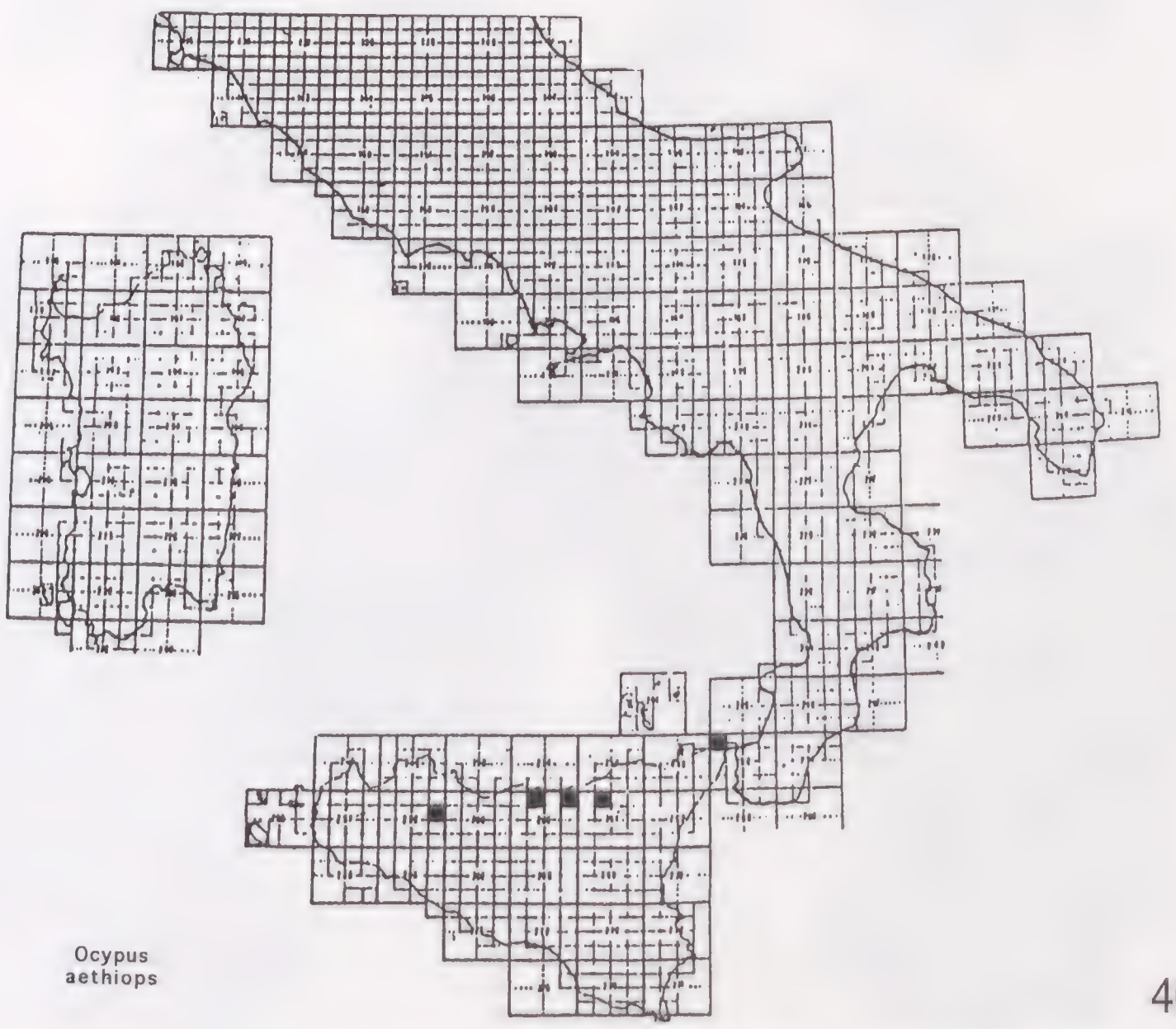
36

Figg. 35-36. Distribuzione in Italia di *Ocypus pedemontanus* (35) e *Ocypus rhaeticus* (36).

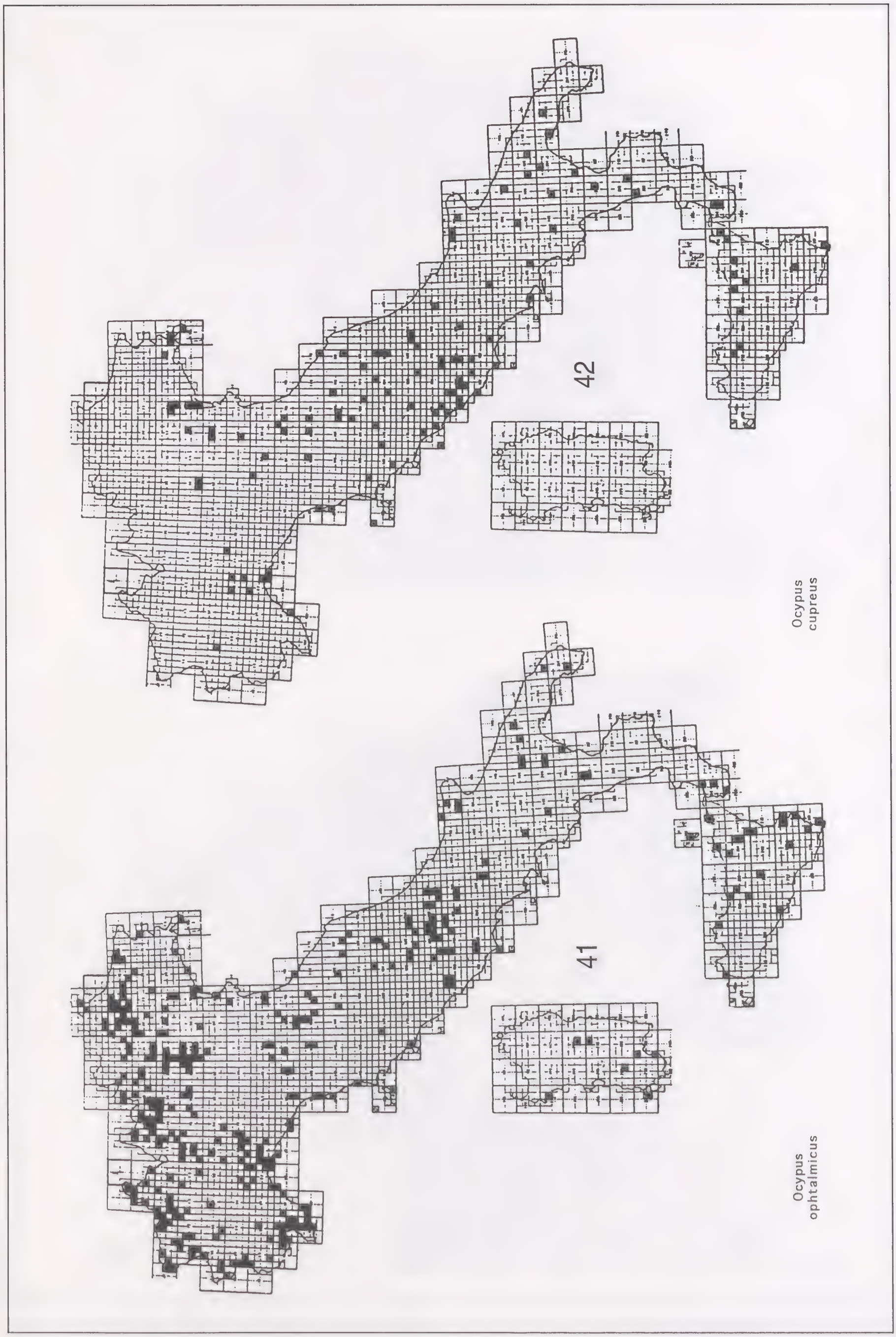


Figg. 37-38. Distribuzione in Italia di *Ocypus solarii*(37) e *Ocypus tenebricosus* (38).

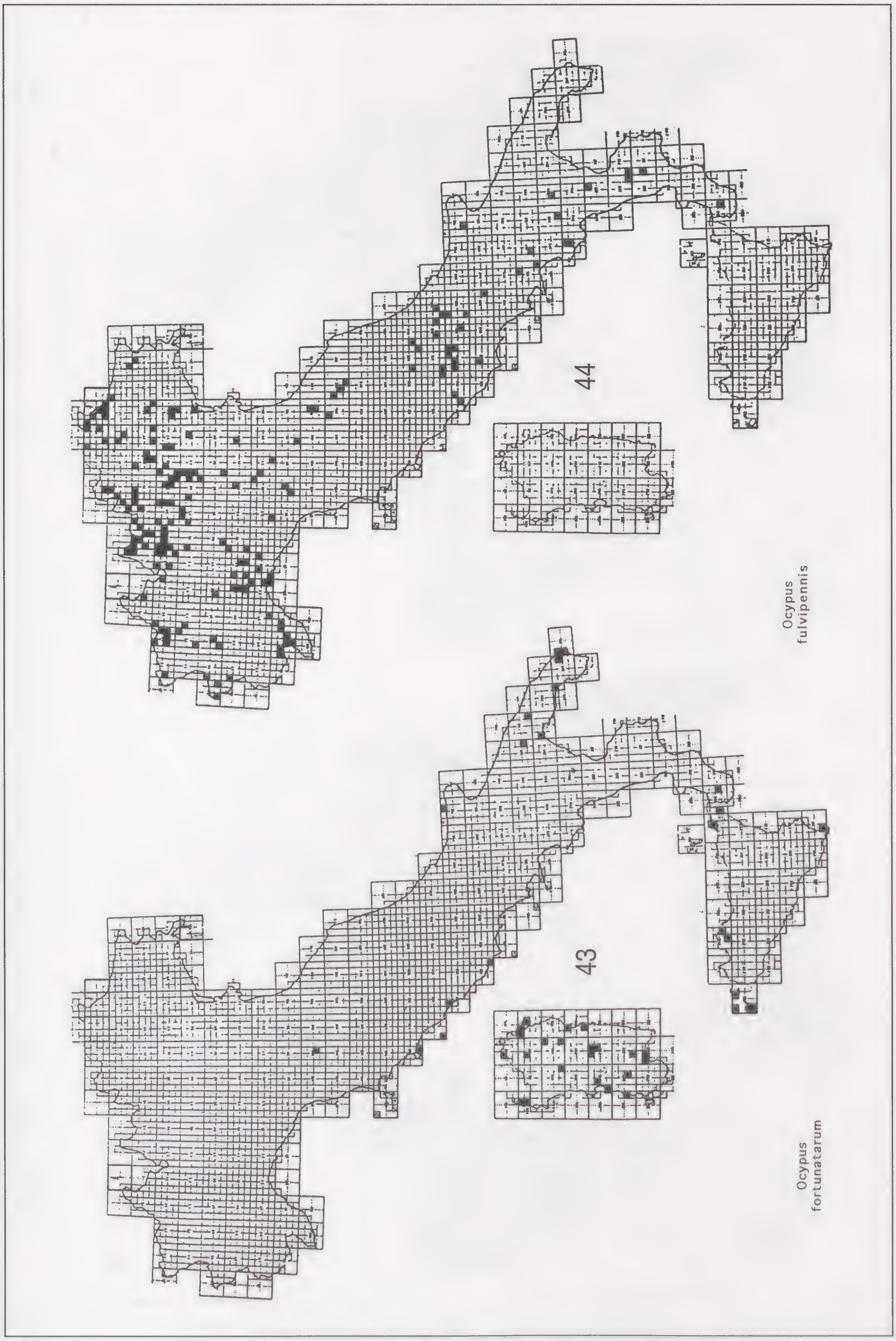




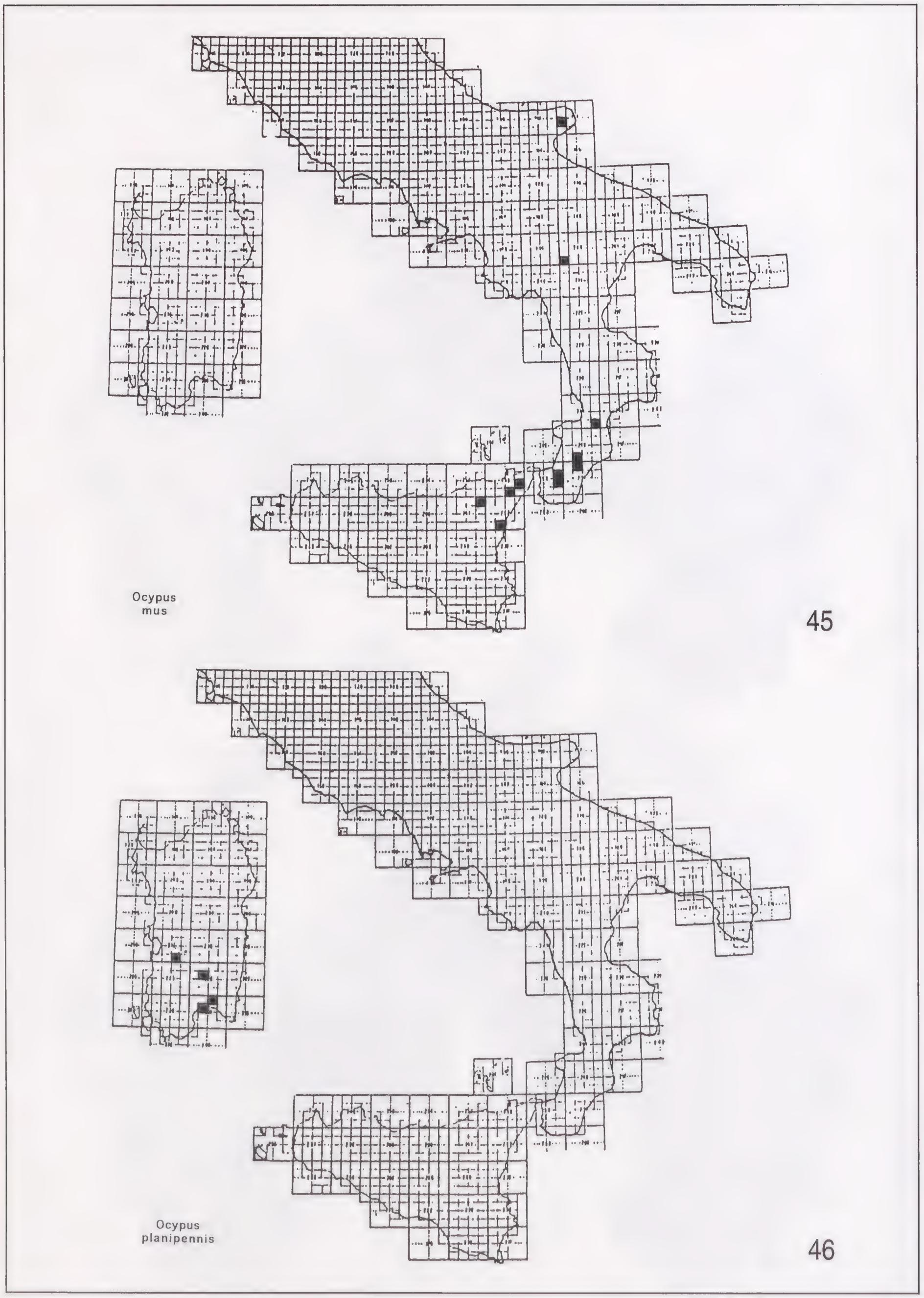
Figg. 39-40. Distribuzione in Italia di *Ocypus aeneocephalus* (39) e *Ocypus aethiops* (40).



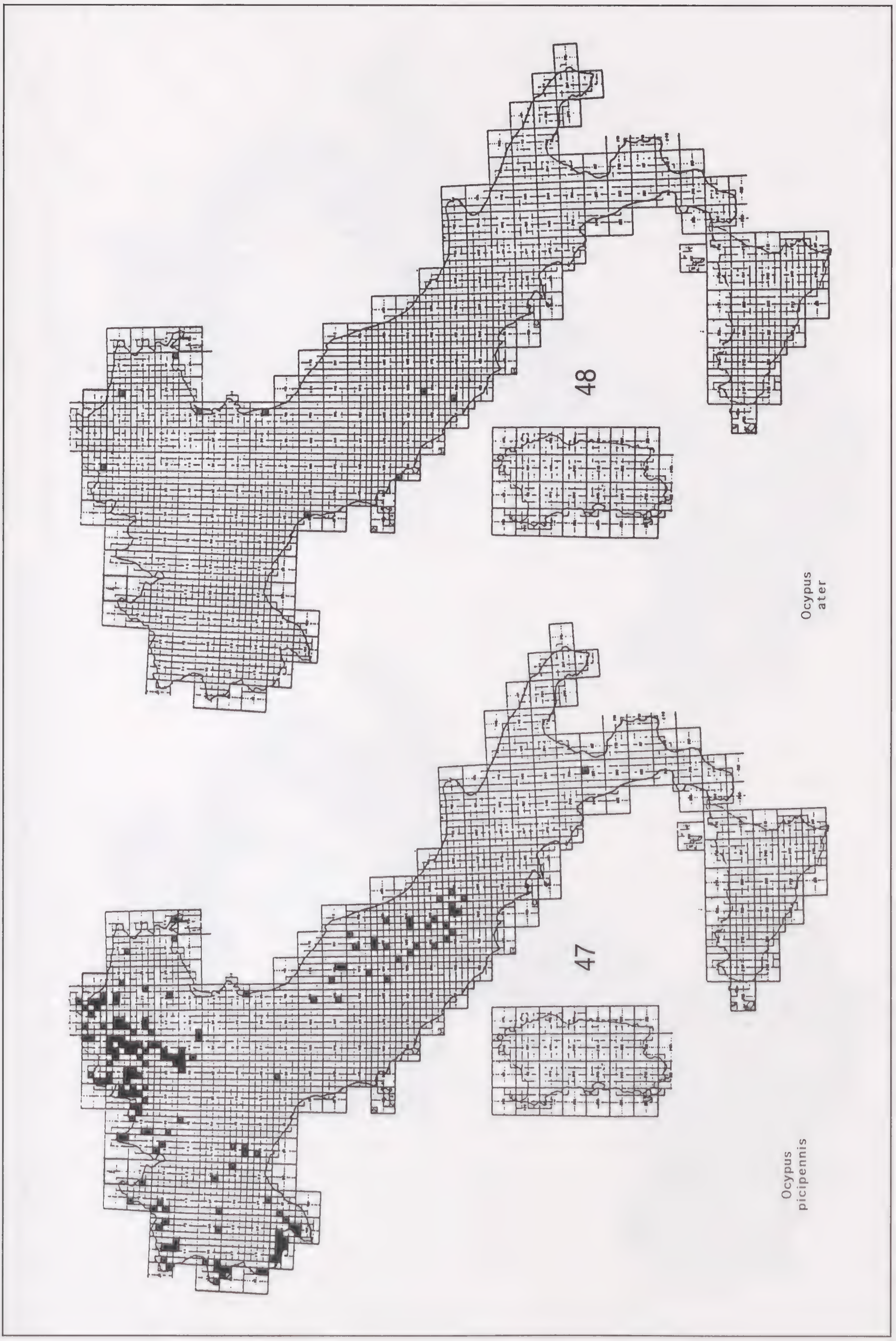
Figg. 41-42. Distribuzione in Italia di *Ocypus ophthalmicus* (41) e *Ocypus cupreus* (42).



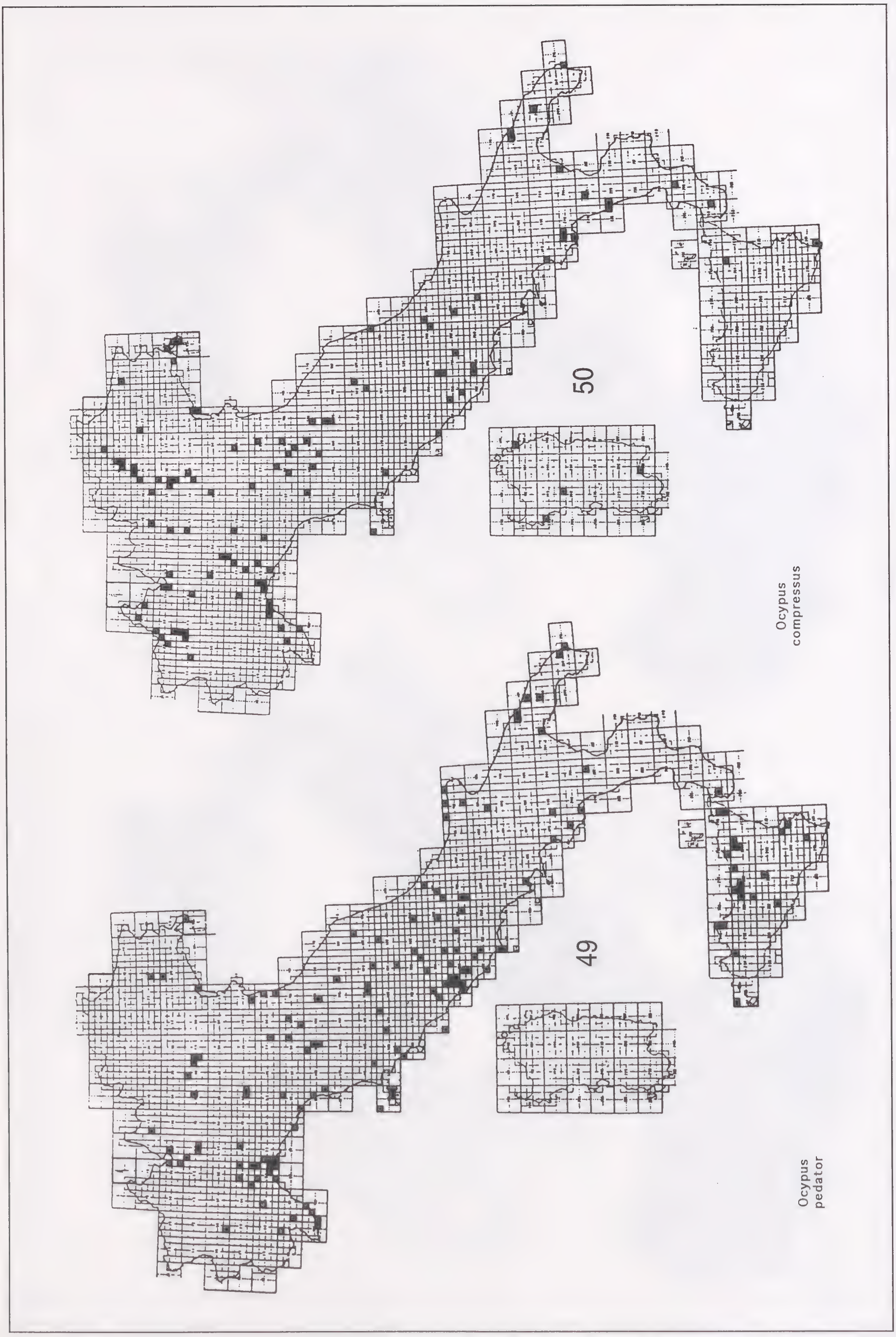
Figg. 43-44. Distribuzione in Italia di *Ocypus fortunatarum* (43) e *Ocypus fulvipennis* (44).



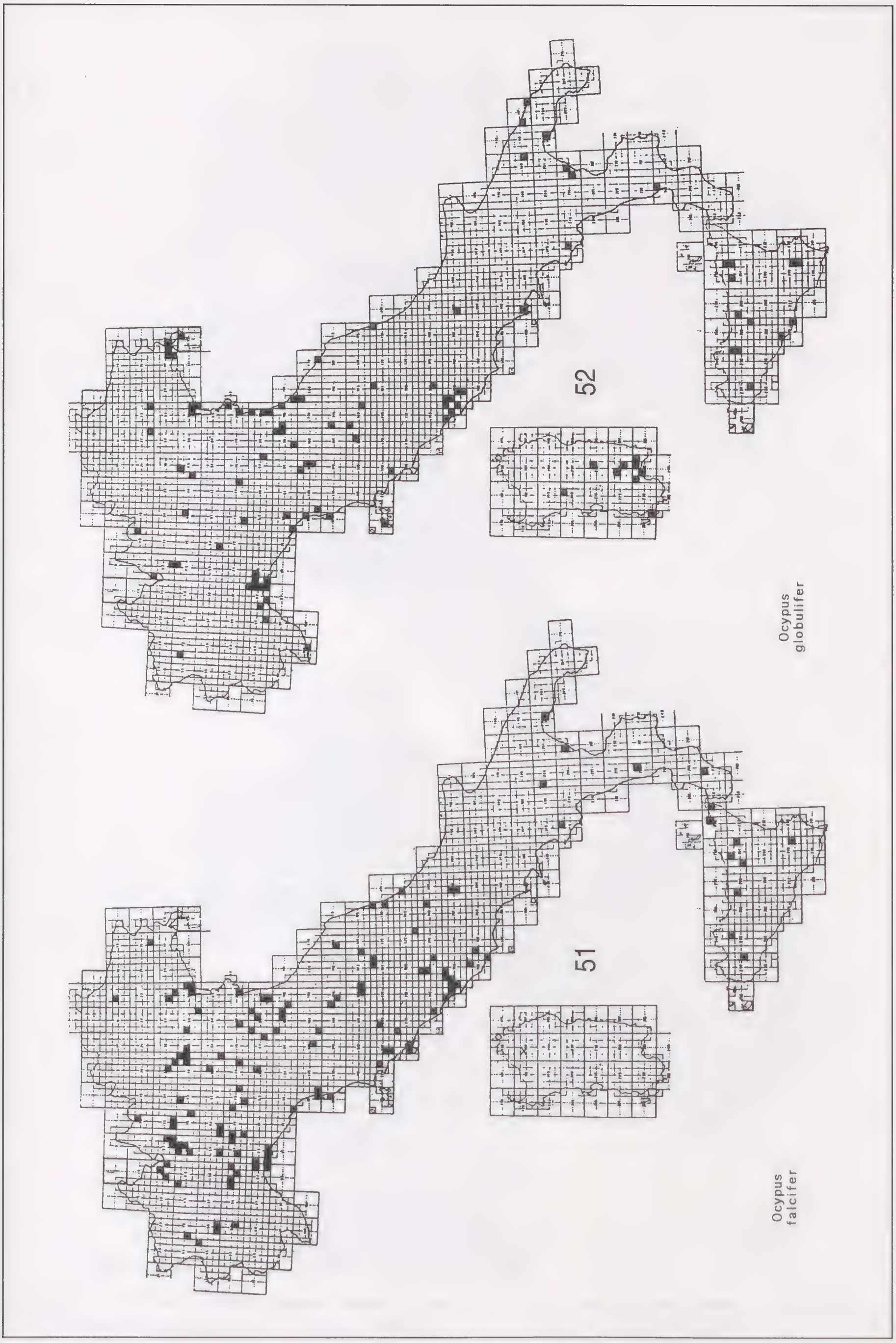
Figg. 45-46. Distribuzione in Italia di *Ocypus mus* (45) e *Ocypus planipennis* (46).



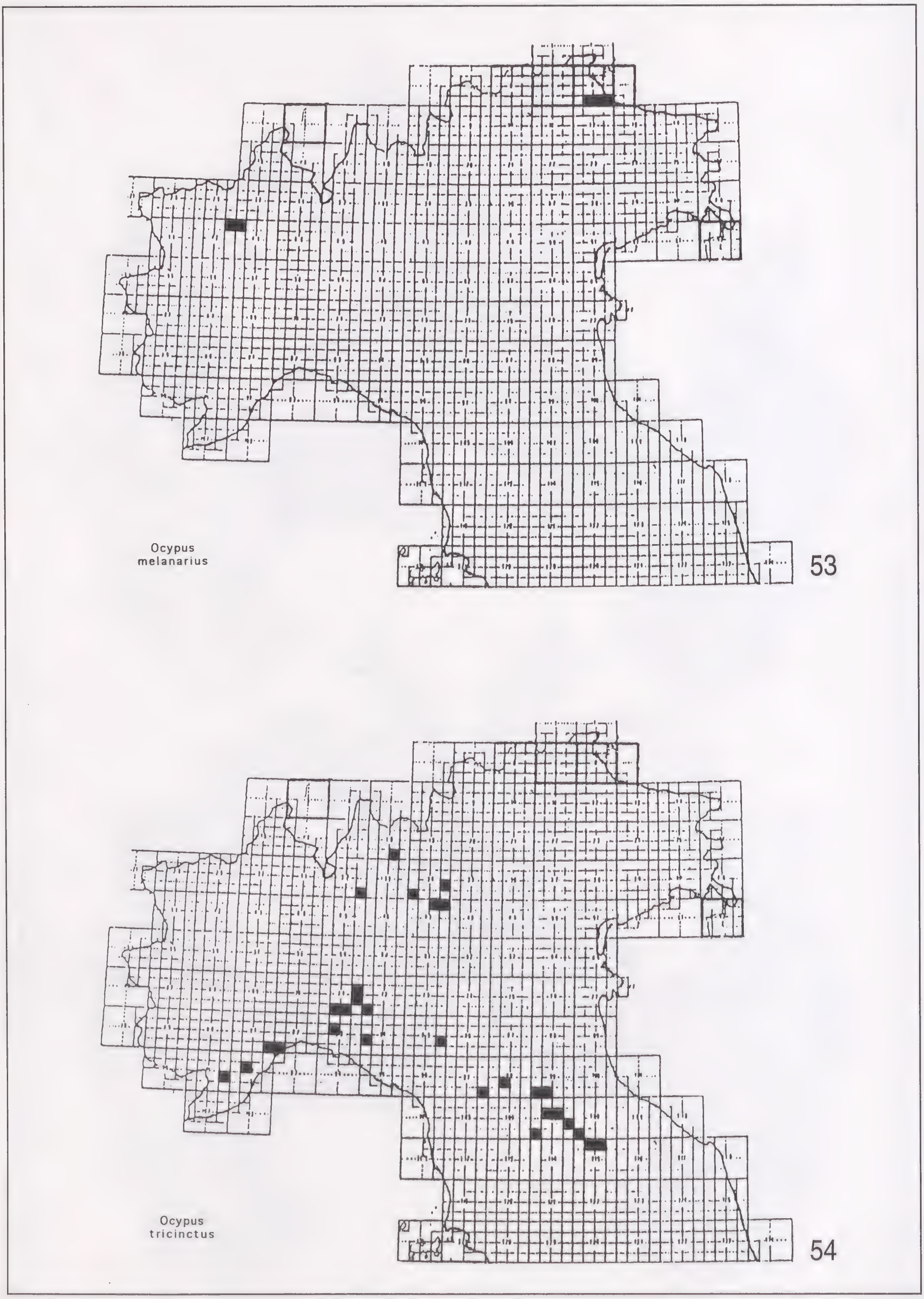
Figg. 47-48. Distribuzione in Italia di *Ocypus picipennis* (47) e *Ocypus ater* (48).



Figg. 49-50. Distribuzione in Italia di *Ocypus pedator* (49) e *Ocypus compressus*(50).



Figg. 51-52. Distribuzione in Italia di *Ocypus falcifer* (51) e *Ocypus globulifer* (52).



Figg. 53-54. Distribuzione in Italia di *Ocypus melanarius* (53) e *Ocypus tricinctus* (54).

Fig. 55. Distribuzione in Italia di *Ocypus winkleri.*

Mem. Soc. entomol. ital, 76: 131-347 *25 febbraio 1998*

Roberto CALDARA & Charles W. O'BRIEN

Systematics and evolution of weevils of the genus *Bagous* VI. Taxonomic treatment of the species of the western Palearctic Region (Coleoptera Curculionidae)

Abstract - On the basis of a taxonomic and phylogenetic analysis of Bagoini at the world level, all known Palearctic genera previously assigned to this tribe are included in the genus *Bagous* Germar, 1817 and the western Palearctic species of this genus, as herein considered, are assigned to 24 species groups of the same systematic level. Therefore, the following genera and subgenera are placed in synonymy herein with the genus *Bagous*: *Abagous* Sharp, 1917; *Bagoimorphus* Desbrochers, 1906; *Dicranthus* Motschulsky, 1845 (= *Anactodes* Brisout, 1863); *Ephimeropus* Hochhut, 1847 (= *Elmidomorphus* Cussac, 1851); *Fontenellus* Hoffmann, 1962; *Hydronomus* Schönherr, 1826; *Lyprus* Schönherr, 1826; *Memptorrhynchus* Iablokoff-Khnzorian, 1960; *Parabagous* Sharp, 1917 (not Schilsky, 1907); *Probagous* Sharp, 1917; *Bagous* subgen. *Heterobagous* Solari, 1930; *Bagous* subgen. *Parabagous* Schilsky, 1907; *Bagous* subgen. *Pseudolyprus* Neresheimer & Wagner, 1932.

The western Palearctic species of *Bagous* are treated systematically. Eighty two species are recognized, of which 13 are newly described. These new species are: *Bagous anatolicus* (Turkey), *Bagous belloi* (Greece), *Bagous cosiensis* (Greece), *Bagous epirotes* (Greece), *Bagous freti* (Turkey), *Bagous lothari* (Serbia, Austria), *Bagous lyali* (Palestine), *Bagous macedon* (Greece), *Bagous meregallii* (Turkey), *Bagous mucronatus* (Turkey, Iraq, Pakistan), *Bagous osellai* (Turkey), *Bagous riedeli* (Turkey), and *Bagous sabellai* (Greece). The following new synonymies of species are proposed: *Bagous diglyptus* var. *alpestris* Hoffmann, 1954 = *Bagous diglyptus* Boheman, 1845; *Bagous gandalf* Isajev & Gratshev, 1994 = *Bagous aliciae* Cmoluch, 1983; *Bagous haematopus* Gyllenhal, 1836 = *Bagous argillaceus* Gyllenhal, 1836; *Bagous hipponensis* Pic, 1928 = *Bagous guttatus* Desbrochers, 1896; *Bagous kirschi* Reitter, 1884 = *Bagous costulatus* Perris, 1870; *Bagous lateralis* Hustache, 1937 = *Bagous revelieri* Tournier, 1874; *Bagous lutulosus* var. *pueli* Hoffmann, 1950 and *Bagous lutulosus* ssp. *temperei* Hoffmann, 1950 = *Bagous lutulosus* (Gyllenhal, 1827); *Bagous marginicollis* Hustache, 1937 = *Bagous limosus* (Gyllenhal, 1827); *Bagous minutus* Mulsant, 1859 and *Bagous mulsanti* Fauvel, 1885 = *Bagous perparvulus* Rosenhauer, 1856; *Bagous mundanus* Boheman, 1845 = *Bagous lutulentus* (Gyllenhal, 1813); *Bagous puncticollis* var. *wagneri* Hoffmann, 1954 = *Bagous puncticollis* Boheman, 1845; *Bagous rudis* Sharp, 1917 = *Bagous robustus* Brisout, 1863; *Bagous sahlbergi* Schilsky, 1911 = *Bagous geniculatus* (Hochhut, 1847); *Bagous semilunatus* Desbrochers, 1895 = *Bagous lutulosus* (Gyllenhal, 1827); *Bagous subcostulatus* Desbrochers, 1896 = *Bagous septemcostatus* Chevrolat, 1860; *Bagous syriacus* Schilsky, 1907 = *Bagous mingrelicus* Tournier, 1874; *Bagous wagneri* Dieckmann, 1964 = *Bagous bagdatensis* Pic, 1904; *Bagoimorphus laticollis* Desbrochers, 1906 = *Bagous mingrelicus* Tournier, 1874; *Memptorrhynchus ripicola* Iablokoff-Khnzorian, 1960 = *Bagous brevipennis* Schneider & Leder, 1879. Among the species described from the geographical area considered herein, only *Bagous libanicus* Schilsky, 1911 remains unknown to us.

A key to species, diagnoses of species groups and description, variability, synonymies, notes on type specimens, comparative notes, distribution, biology, habitus photographs and line illustrations of male and female genitalia of each species are provided.

Riassunto - *Sistematica ed evoluzione delle specie del genere* Bagous *Germar, 1817. VI. Revisione tassonomica delle specie della regione paleartica occidentale (Coleoptera Curculionidae).*

Mediante l'analisi tassonomica e filogenetica dei Bagoini a livello mondiale, tutti i generi paleartici precedentemente facenti parte della tribù vengono inclusi nel genere *Bagous* Germar, 1817 e le specie della Regione paleartica occidentale di questo genere sono assegnate a 24 gruppi considerati tutti allo stesso livello tassonomico. Pertanto i seguenti generi e sottogeneri vengono posti in sinonimia del genere *Bagous*: *Abagous* Sharp, 1917; *Bagoimorphus* Desbrochers, 1906; *Dicranthus* Motschulsky, 1845 (=

Anactodes Brisout, 1863); *Ephimeropus* Hochhut, 1847 (= *Elmidomorphus* Cussac, 1851); *Fontenellus* Hoffmann, 1962; *Hydronomus* Schönherr, 1826; *Lyprus* Schönherr, 1826; *Memptorrhynchus* Iablokoff-Khnzorian, 1960; *Parabagous* Sharp, 1917 (non Schilsky, 1907); *Probagous* Sharp, 1917; *Bagous* subgen. *Heterobagous* Solari, 1930; *Bagous* subgen. *Parabagous* Schilsky, 1907; *Bagous* subgen. *Pseudolyprus* Neresheimer & Wagner, 1932.

Dal punto di vista sistematico sono considerate valide 82 specie, delle quali 13 risultano nuove per la scienza: *Bagous anatolicus* (Turchia), *Bagous belloi* (Grecia), *Bagous cosiensis* (Grecia), *Bagous epirotes* (Grecia), *Bagous freti* (Turchia), *Bagous lothari* (Serbia, Austria), *Bagous lyali* (Palestina), *Bagous macedon* (Grecia), *Bagous meregallii* (Turchia), *Bagous mucronatus* (Turchia, Iraq, Pakistan), *Bagous osellai* (Turchia), *Bagous riedeli* (Turchia), *Bagous sabellai* (Grecia). Vengono inoltre proposte le seguenti nuove sinonimie: *Bagous diglyptus* var. *alpestris* Hoffmann, 1954 = *Bagous diglyptus* Boheman, 1845; *Bagous gandalf* Isajev & Gratshev, 1994 = *Bagous aliciae* Cmoluch, 1983; *Bagous haematopus* Gyllenhal, 1836 = *Bagous argillaceus* Gyllenhal, 1836; *Bagous hipponensis* Pic, 1928 = *Bagous guttatus* Desbrochers, 1896; *Bagous kirschi* Reitter, 1884 = *Bagous costulatus* Perris, 1870; *Bagous lateralis* Hustache, 1937 = *Bagous revelieri* Tournier, 1874; *Bagous lutulosus* var. *pueli* Hoffmann, 1950 e *Bagous lutulosus* ssp. *temperei* Hoffmann, 1950 = *Bagous lutulosus* (Gyllenhal, 1827); *Bagous marginicollis* Hustache, 1937 = *Bagous limosus* (Gyllenhal, 1827); *Bagous minutus* Mulsant, 1859 e *Bagous mulsanti* Fauvel, 1885 = *Bagous perparvulus* Rosenhauer, 1856; *Bagous mundanus* Boheman, 1845 = *Bagous lutulentus* (Gyllenhal, 1813); *Bagous puncticollis* var. *wagneri* Hoffmann, 1954 = *Bagous puncticollis* Boheman, 1845; *Bagous rudis* Sharp, 1917 = *Bagous robustus* Brisout, 1863; *Bagous sahlbergi* Schilsky, 1911 = *Bagous geniculatus* (Hochhut, 1847); *Bagous semilunatus* Desbrochers, 1895 = *Bagous lutulosus* (Gyllenhal, 1827); *Bagous* sub*costulatus* Desbrochers, 1896 = *Bagous septemcostatus* Chevrolat, 1860; *Bagous syriacus* Schilsky, 1907 = *Bagous mingrelicus* Tournier, 1874; *Bagous wagneri* Dieckmann, 1964 = *Bagous bagdatensis* Pic, 1904; *Bagoimorphus laticollis* Desbrochers, 1906 = *Bagous mingrelicus* Tournier, 1874; *Memptorrhynchus ripicola* Iablokoff-Khnzorian, 1960 = *Bagous brevipennis* Schneider & Leder, 1879. Fra le specie descritte dell'areale geografico preso in considerazione, solo *Bagous libanicus* Schilsky, 1911 è rimasto sconosciuto agli autori.

Vengono fornite la tabella dicotomica delle specie considerate e una diagnosi per ogni gruppo di specie trattato; per ogni specie sono inoltre riportate descrizione, variabilità, sinonimie, informazioni sugli esemplari della serie tipica, distribuzione, note comparative e biologiche, fotografia dell'habitus e disegni degli organi genitali maschili e femminili.

Key-words: Curculionidae, *Bagous*, western Palearctic species, new species, taxonomic revision.

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INTRODUCTION

The weevils of the genus *Bagous* Germar are distributed worldwide except for the Neotropical Region including Central and South America. Recently, the previously poorly known species of Australia, Japan and the Indian Subcontinent were revised. In contrast to these faunas the western Palearctic species, and especially those from Central and North

Europe, surely were studied more extensively following their original descriptions (Brisout, 1863; Schilsky, 1907; Sharp, 1917a, 1917b; Hustache, 1927; Neresheimer & Wagner, 1930, 1932; Hoffmann, 1954; Dieckmann, 1964a, 1983; Bruce, 1968; Smreczynski, 1972). However, only Neresheimer & Wagner (1930, 1932) and subsequently Dieckmann (1964a) and Bruce (1968) based their studies on the examination of the available type specimens in an attempt to clarify the complex taxonomic status of many common species. Sharp (1917a, 1917b) was the first who carefully examined the structures of the male genitalia of many species with short apodemes and based on this he arrived at an erroneous conclusion (the transfer of this group of *Bagous* to Cleoninae). Also Dieckmann (1964a), González (1967) and Bruce (1968) examined the male genitalia of some species, but unfortunately only with the taxonomic purpose of separating species.

In conclusion, until now all authors who treated species of *Bagous*, their subgenera and related genera never adequately discussed their true systematic positions. Therefore, in addition to the definition of the taxonomic value of the species, another aim of the present work is to examine more carefully both external and genital morphology of the western Palearctic taxa in an attempt to facilitate their phylogenetic analysis, also using data from the studies of the other faunas already completed (O'Brien & Askevold, 1992; O'Brien et al., 1994; O'Brien & Askevold, 1995) or those still in progress.

Materials and Methods

The available type specimens and/or type series have been studied of all species in the western Palearctic region (West of the sixtieth parallel), and dissections of genitalia of the holotype or lectotype were undertaken when necessary.

This study was based on examination of about 6000 adult specimens of *Bagous*, which are preserved in the museums and collections referred to in the text; the following acronyms were used:

ARCF. Alexander Riedel Collection, private, Friedberg, Germany.

BMNH. Department of Entomology, The Natural History Museum, London, England (C. Lyal, R. T. Thompson).

CIBC. Commonwealth Institute of Biological Control, Rawalpindi, Pakistan (A. Ikram Mohyuddin).

CWOB. Charles W. O'Brien Collection, private, Entomology-Biological Control, Florida A. & M. University, Tallahassee, FL., USA.

DEIE. Deutsches Entomologisches Institut, Eberswalde, Germany (L. Behne).

ENSA. Ecole Nationale Superiore Agronomique, Montpellier, France (F. Leclant).

FACF. Fernando Angelini Collection, private, Francavilla Fontana (Brindisi), Italy.

FTCF. Fabio Talamelli Collection, private, S. Giovanni in Marignano (Forlì), Italy.

HFCM. Herbert Franz Collection, private, Mödling, Austria.

HNHM. Hungarian Natural History Museum, Budapest, Hungary (O. Merkl).

IZBM. Institute of Zoology, Byelorussian Academy of Sciences, Minsk, Byelorussia (V. Karasyov).

IZSP. Institute of Zoology, Russian Academy of Sciences, St. Petersburg, Russia (B. A. Korotyaev).

IZWP. Institute of Zoology, Warszawa, Poland (M. Wanat).

JFCH. Jan Fremuth Collection, private, Hrádec Královè, Czech Republic.

JPCM. Jean Pelletier Collection, private, Monnaie, France.

MGCD. Museo Civico di Storia Naturale, Collezione Dodero, Genova, Italy (R. Poggi).

MNCN. Museum de Ciencias Naturales, Madrid, Spain (M. A. Alonso Zazaraga).

MNHB. Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (F. Hieke).

MNHG. Muséum d'Histoire Naturelle, Genève, Switzerland (C. Besuchet).

MNHN. Muséum National d'Histoire Naturelle, Paris, France (H. Perrin).
MNHW. Museum of Natural History, Wroclaw University, Wroclaw, Poland (M. Wanat).
MKCB. Michael Kostal Collection, private, Bratislava, Slovakia.
MSNF. Museo di Storia Naturale "La Specola", Firenze, Italy (P. Abbazzi).
MSNG. Museo Civico di Storia Naturale, Genova, Italy (R. Poggi).
MSNM. Museo Civico di Storia Naturale, Milano, Italy (C. Leonardi, C. Pesarini).
MZUL. Museum of Zoology, Lund University, Lund, Sweden (R. Danielsson).
NHMB. Naturhistorisches Museum, Basel, Switzerland (M. Brancucci).
NHMW. Naturhistorisches Museum, Wien, Austria (M. Jäch, H. Schönmann).
NHRS. Naturhistoriska Riksmuseet, Stockholm, Sweden (P. Lindskog, P. I. Persson).
OVCK. Oldrich Vorisek Collection, private, Kladno, Czech Republic.
PIMR. Paleontological Institute, Russian Academy of Sciences, Moscow, Russia (W. G. Gratshev).
PPCM. Peter Poot Collection, private, Maastricht, Holland.
PSCH. Peter Sprick Collection, private, Hannover, Germany.
RBCN. Roman Borovec Collection, private, Nechanice, Czech Republic.
RCCM. Roberto Caldara Collection, private, Milan, Italy.
SMNS. Staatliches Museum für Naturkunde, Stuttgart, Germany (W. Schwaller).
SMTD. Staatliches Museum für Tierkunde, Dresden, Germany (R. Krause).
UJIZ. Uniwersytet Jagiellonski Instytut Zoologii, Krakow, Poland (S. Knutelski).
USNM. National Museum of Natural History, Washington, DC., USA (J. Pakaluk).
ZMKB. Zoologische Forschunginstitut und Museum A. König, Bonn, Germany (M. Schmitt).
ZMUC. Zoological Museum, Cambridge University, Cambridge, England (W. Foster).
ZMUK. Zoological Museum, Copenhagen University, Copenhagen, Denmark (M. Hansen).
ZMUU. Zoological Museum, Uppsala University, Uppsala, Sweden (T. G. T. Jaenson).
ZSSM. Zoologische Staatssammlung, Munich, Germany (G. Scherer).

DESCRIPTION OF SPECIES — For descriptions we used one male and one female each, belonging or not belonging to the type series but where possible with features intermediate between the two extremes of the range of variability of the species. We dedicated a special paragraph to this variability.

Descriptions of species were prepared with the aid of the computer program DELTA (Dallwitz & Paine, 1986; Partridge et al., 1988) (October, 1993 release). Uniformity of wording and presentation was guaranteed through use of this program. The format and wording of descriptions is constrained by DELTA and the way the data set must be prepared. Therefore, the precise construction of descriptions departs somewhat from the traditional taxonomic style. Punctuation must be observed carefully, in order correctly, to interpret series of attributes. Obviously since the first revision of the Australian species (O'Brien & Askevold, 1992) the data base used continued to grow as other faunal regions were studied and new species were described (O'Brien et al., 1994; O'Brien & Askevold, 1995). Now the description are much more detailed and markedly more uniform than most of those previously published by other authors and are very useful for phylogenetic studies, although unfortunately they are very long. Therefore, since in this monograph we had to treat a very large number of species, which sometimes differ in only a few characters, we decided to drastically reduce some descriptions reporting only those differences from the complete description of a closely related species. Moreover, we decided to delete the character states common to all the species of a group which are reported in the description of the species group. However,

all of the complete descriptions are available on magnetic disk for any student who wishes request them from us. Also to conserve space, we did not report the detailed labels of the specimens examined for the more common northern and central European species, since their distributions have been published so recently (Dieckmann, 1983).

RECOGNITION OF SPECIES GROUPS — Reference is made to species groups in discussion of characters below. These groups are recognized despite lack of a reconstructed phylogeny of all *Bagous*, because more than two thirds of the described world species have been studied and we are confident that they are phylogenetically well-founded. Analysis to test species-group monophyly was specifically carried out in the study of Japanese *Bagous* (Askevold et al., 1994).

MEASUREMENTS — Measurements were made with an ocular micrometer in a Wild M8 stereoscopic microscope. Body length was measured from the anterior margin of the pronotum along the midline to the apex of the elytra. Range in length was determined by measuring visually selected samples of the largest and smallest available specimens. The rostrum was measured in lateral view from the apex (excluding mandibles) to the base, where the dorsal margin of the scrobe reaches the eye or would reach the eye, if continued in those species with the scrobe not reaching the eye. The antennal insertion was measured in lateral view from the apex (excluding mandibles) to the point of insertion of the base of the scape. The frons was measured across the eyes at the midpoint of the margin of the eye seen in a frontal view. The length of the pronotum was measured along the midline from the apex to the base; the width was measured transversely at the widest point. The length of the elytra was measured along the midline from the base to the apex; the width was measured transversely at the widest point. The length of each abdominal sternum was measured along the midline from the base to the apex. The length of the median lobe was measured from the apex to the point of its attachment of the apodeme, and the length of the apodeme was measured from the point of attachment to the median lobe to the apex of the apodeme.

SELECTED GENITAL STRUCTURES USED IN CLASSIFICATION OF *BAGOUS*

Many genital structure are fundamental for identification of species as well as for phylogenetic analysis.

Characters used are mostly those of the median lobe (term used by us only in reference to the completely tubular region) and the internal sac of the male, and of sternum VIII of the female genitalia. The spermatheca and gonocoxa, and to a much lesser extent tergum VIII and the pygidium, are also useful in the female.

Terms used for male genitalia follow those previously used by O'Brien & Askevold (1992) and O'Brien et al. (1994).

Terminology of female genitalia follows, as much as possible, that of Lindroth (1957), with additional terms used by O'Brien & Askevold (1992) and O'Brien et al. (1994).

The following structures must be considered carefully:

MALE GENITALIA.

Basal plate (cf. figs. 115, 135, bp). Proximal extension of the ventral surface of the

median lobe visible from above, between the apodemes, as a distinct plate (e.g. many members of the *B. bipunctatus* group, *B. binodulus* and *B. argillaceus*).

Denticles (cf. figs. 112, 114, 137a, 164, d). Microstructures just discernable with a dissecting microscope, and best seen from above, present in three locations on the median lobe: distally projecting on the lateral margin of the median lobe, distad of the dorsal process (e.g. *B. frit*); on the dorsal process, on what appears to be the internal surface in cases where the dorsal surface of the dorsal process is open (e.g. *B. frit* and *B. limosus*); in the internal sac where are of different sizes, shapes and densities at particular locations (e.g. the *B. bipunctatus* and the *B. lutosus* groups and a few members of the *B. chevrolati* group).

Dorsal process (cf. figs. 163, 165, dp). Process fused directly to the median lobe, not capable of rotation or longitudinal articulation, projecting dorsally from the posterolateral margin of the orifice, and concealing it, at least in part (e.g. the *B. nodulosus*, *B. validus*, *B. collignensis*, *B. brevis*, *B. transversus*, and *B. frit* groups). This process must not be confused with "false" dorsal processes presented i.e. by the *B. geniculatus group* (cf. fig. 130, fdp): in fact these latter structures are formed by moveable sclerites.

Internal sac sclerites (cf. 93, 121, 122, iss; 135a-137a). Sclerotized structures located near the orifice of the median lobe or proximally between the apodemes. They vary in size, shape and complexity. Apart from the denticles (see above), the simplest are U-shaped to V-shaped, but the most complex are an ensemble of articulated and fused sclerites (cylindrical, clavate to horn-like, or flattened, triangular to rectangular to blade-like), sometimes with groups of setae intermixed (e.g. some species of the *B. interruptus* group).

Orificial margins (cf. fig. 115, do, po). Two orificial margins are recognized, the distal (do) and proximal (po) margins. Their discrimination is important in determining details of structure. The distal margin generally is fairly distinct. However, the proximal margin generally is indistinct because typically it is membranous and is the point at which the internal sac invaginates. In some species this margin is distinct and gives rise to a prominent dorsal sac-supporting sclerite. Among species with a dorsal process, the proximal margin is concealed.

Orificial plates (cf. figs. 125, 127, 137, op). Moveable more or less sclerotized distal extensions of the dorsal surface of the median lobe covering part of the orifice and varying in size and shape (e.g. in the *B. subruber*, *B. tempestivus* and *B. lutosus* groups). This structure is horizontal and anteriorly directed in repose (orifice closed) and vertical when the orifice is opened.

Orificial sclerites (cf. fig. 114, os). Pair of sclerites situated in the apical orifice of the median lobe. These sclerites evert with the sac and form a basal sac-supporting structure.

Pseudo-orifice (cf. figs. 98, 135, pso). Area of diminished sclerotization of the median lobe immediately behind the orifice or orificial area (e.g. the *B. argillaceus*, *B. interruptus*, *B. elegans* and *B. tubulus* groups).

Setal brush (cf. figs. 130, 165, sb). Group of dense long setae, which usually projects medially, often associated with the dorsal process (e.g. the *B. collignensis* and *B. brevis* groups).

Ventral process (cf. fig. 148, vp). Process fused directly to the ventral surface of the median lobe, not capable of rotation or longitudinal articulation and projecting dorsaally (e.g. the *B. cylindricus* group).

FEMALE GENITALIA.

Apodemes of sternum VIII (cf. figs. 166, 184, 186, ap). Paired structure, not a single rod-like structure as usually considered, consisting of a pair of sclerotic rods that are connected medially by a less heavily sclerotized area (O'Brien and Askevold, 1992), as clearly suggested by the shape of the apodemes in several species of *Bagous* (e. g. the *B. crispus* and *B. chevrolati* groups). The base of the apodemes is the proximal end where muscles attach (cf. fig. 189, apb); the apex is the distal end, which is limited by a broadly curved, suture-like line of contact with the arms (cf. fig. 189, apa). Exceptionally as in the *B. crispus* group the apodemes are fully cleft, completely separate, and attached laterally on the sternum.

Bursal sclerites (cf. figs. 166, bs; 186a, 203a, 204a). Sclerotized structures of various size, shape and complexity (scoop-shaped, polygonal, polylobed) in the bursa copulatrix (e.g. the *B. chevrolati* and *B. argillaceus* groups, and *B. puncticollis*).

Arms of sternum VIII (cf. figs. 166, 184, 186, ar). This denotes an area, usually paired, of greater sclerotization of the plate of sternum VIII. The arms usually have setae or at least small sensilla apically. Basally, the arms broadly contact the apices of the apodemes, and may even extend between the apices of the apodemes. The arms are usually separate, leaving an "open" area between them which we call the fenestra (fig. 186, f). In *B. alismatis* and in some extra-Palearctic species the arms are "closed", i. e. fused apically (cf. fig. 185, f).

Gonocoxa (cf. fig. 166, g). The gonocoxa is typical for weevils and consists of a dorsal surface and ventral surface, joined laterally but "open" medially. The ventral surface is generally complete, while the dorsal surface may be complete to almost absent; the amount of dorsal surface that is present is reflected in figures by the amount of darkened area.

Pygidium. Tergum X which is essentially of the same shape in most females of *Bagous*, with the apex usually slightly and broadly emarginate. However, the apex is exceptionally very deeply emarginate (e.g. in the *B. frit* group).

Spermatheca (cf. figs. 186, 189). The spermatheca is comprised of the body (b), nodulus (n), ramus (r), spermathecal duct (sd), and the spermathecal gland (sg).

Tergum VIII (cf. figs. 65-66). In what appear to be the more primitive groups, the entire tergum is more or less hemispherical and featureless, whereas in most advanced groups it is more or less cordate. In the *B. geniculatus* and *B. biimpressus* groups the tergum VIII possesses an unusual thickened apex (fig. 66).

TAXONOMIC TREATMENT OF *BAGOUS* GERMAR

Bagous Germar

Bagous Germar, 1817: 340 [type species: *Rhynchaenus binodulus* Gyllenhal by subsequent designation (Schönherr, 1826: 290)]. Brisout, 1863: 491. Tournier, 1874: 103. Schilsky, 1907: D. Hustache, 1930: 205. Neresheimer & Wagner, 1930: 261. Hoffmann, 1954: 712, 714. Dieckmann, 1964a: 88; 1983: 352. O'Brien & Askevold, 1992: 338; 1995: 12. O'Brien et al., 1994: 8. Caldara & O'Brien, 1994, 7: 1.

Hydronomus Schönherr, 1826: 231 [type species: *Rhynchaenus alismatis* (Marsham, 1802), by monotypy]. Tournier, 1874: 103. Schilsky, 1907: D. Sharp, 1917a: 31. Solari, 1930: 46. Hustache, 1930: 236. Hoffmann, 1954: 711, 713. Dieckmann, 1983: 351, 373 (**n. syn.**).

Lyprus Schönherr, 1826: 288 (*Cyprus* err.: incorrect original spelling according to the ICZN Art. 32 c) (type species: *Rhynchaenus cylindrus* Gyllenhal, by monotypy). Schönherr, 1836: 536. Schilsky,

1907: D (subgen. of *Bagous*). Sharp, 1917b: 103. Hustache, 1930: 206 (subgen. of *Bagous*). Hoffmann, 1954: 716, 721 (subgen. of *Bagous*). Dieckmann, 1983: 353, 357 (subgen. of *Bagous*) (**n. syn.**).

Dicranthus Motschulsky, 1845: 102 (type species: *Dicranthus vittatus* Motschulsky, by monotypy). Schilsky, 1907: D. Hustache, 1930: 203. Hoffmann, 1954: 712. Dieckmann, 1983: 350, 352. Kodada et al., 1992: 196 (**n. syn.**).

Ephimeropus Hochhut, 1847: 543. (type species: *Ephimeropus geniculatus* Hochhut, by monotypy). Tournier, 1874: 103. Schilsky, 1907: C. Solari, 1930: 46. Hoffmann, 1954: 716, 717 (subgen. of *Bagous*). Dieckmann, 1983: 353, 354 (subgen. of *Bagous*) (**n. syn.**).

Elmidomorphus Cussac, 1851: 205 (type species: *Elmidomorphus aubei* Cussac, by monotypy). Bedel, 1884: 103 (*Helmintimorphus* err.). Schilsky, 1907: N (subgen. of *Bagous*). Sharp, 1917b: 107. Hustache, 1930: 206 (subgen. of *Bagous*) (**n. syn.**).

Anactodes Brisout, 1863: 497 [type species: *Bagous elegans* (Fabricius), by monotypy] (**n. syn.**).

Bagoimorphus Desbrochers, 1906: 11 (type species: *Bagoimorphus laticollis* Desbrochers, by monotypy) (**n. syn.**).

Parabagous Sharp, 1917a: 28 (not Schilsky, 1907) [type species: *Bagous frit* (Gyllenhal)].

Abagous Sharp, 1917a: 27 [type species: *Bagous lutulentus* (Gyllenhal)]. Hoffmann, 1954: 717, 740 (subgen. of *Bagous*). Dieckmann, 1983: 354, 369 (subgen. of *Bagous*) (**n. syn.**).

Probagous Sharp, 1917b: 102 (type species: *Bagous heasleri* Newbery).

Memptorrhynchus Iablokoff-Khnzorian, 1960: 253 (type species: *Memptorrhynchus ripicola* Iablokoff-Khnzorian, by monotypy) (**n. syn.**).

Fontenellus Hoffmann, 1962: 120 (type species: *Bagous cyperorum* Peyerimhoff, by monotypy) (**n. syn.**).

Bagous subgen. *Parabagous* Schilsky, 1907: N (type species: *Bagous chevrolati* Tournier, by present designation). Hustache, 1930: 206. Hoffmann, 1954: 716, 722. González, 1971: 5.

Bagous subgen. *Heterobagous* Solari, 1930: 44 (type species: *Bagous nupharis* Apfelbeck).

Bagous subgen. *Pseudolyprus* Neresheimer & Wagner, 1932b: 1536 (type species: *Bagous cylindricus* Rosenhauer, by monotypy) (**n. syn.**).

DIAGNOSIS - Western Palearctic species of *Bagous* can be distinguished from other genera of Curculionidae from this region by the following diagnostic characters: granulate to subgranulate, pitted (at least in part) scales, not hydrofuge except at points of articulation; usually with distinct, often dense, waterproof coating (lacking only in specimens recently emerged from pupal cell); median prosternal sulcus in front of forecoxae usually weakly developed to well-developed; tibiae usually slender, ventrally sinuate to bisinuate; tibial uncus well-developed; tarsomere 3 subcordate (figs. 67-71) to linear (figs. 84-88), not deeply bilobed. Genitalia: median lobe of male dorsally fully sclerotized except in orificial area, ventrally fully sclerotized, with or without post-orificial dorsal process; apodemes long and slender to very short, robust and curved inward; there are no diagnostic characters of female genitalia.
REDESCRIPTION - Body very small to large (length, 1.20-8.90 mm); usually elongate-oval, also short broad-oval to elongate-cylindrical, robust to slender; declivital callus of elytra various in size and shape, rarely absent; densely clothed with scales, usually granulate and pitted, rarely smooth with fine to obsolete pit; with waterproof coating, from clear and shellac-like to dense and subopaque, latter often concealing scales, colour pattern and cuticle. Rostrum usually shorter than pronotum, occasionally subequal in length or longer; often

evenly or unevenly curved with apex depressed, rarely straight; subcylindrical to rounded; usually densely clothed with scales, at least in basal 1/2, apically often subglabrous; usually sides expanding to apex. Head usually weakly to strongly convex, occasionally obliquely flattened; densely clothed with subcontiguous, contiguous or imbricate scales, at times hydrofuge on vertex, genae and along margin of eye; frons variable, nearly contiguous to very broad, convex to broadly deeply impressed, often medially sulcate or foveate, often swollen beside margin of eye, occasionally subcarinate there, usually with subrecumbent to erect setae there, often scale-like, setae occasionally absent. Antennae usually inserted subapically, ca. 1/4 to 1/3 distance from apex of rostrum, occasionally near middle, and rarely subbasally, ca. 1/3 from base; scape elongate, resting in deep scrobe, reaching eye; funicle 7 segmented, exceptionally 6 segmented; club 3 segmented, usually annulate and densely pubescent, rarely with 1st segment glabrous and elongate. Pronotum usually transverse, broader than long, occasionally subequal in length and width or longer than broad; disc usually flattened, though occasionally undulate or rugose, rarely convex, usually with longitudinal median groove, latter sometimes interrupted, forming one or two impressions or rarely absent completely; scale covering usually dense; occasionally with scattered evident subrecumbent to suberect scale-like setae, these usually not visible. Scutellum visible, small to moderately large, usually round, clothed usually with dense hydrofuge scales, sometimes coated and even concealed by dense waterproof coating. Elytra with well-developed humeri, usually obliquely angulate, occasionally acutely produced or subquadrately rounded; usually markedly wider than pronotum, occasionally subequal in width to pronotum; intervals usually flat to weakly convex, often with odd-numbered intervals (especially 3, 5 and 7) more convex and more elevated, rarely all intervals markedly convex; usually only odd-numbered intervals with row of recumbent to suberect small setae, these occasionally scale-like and very large; interval 3 often with antedeclivital swelling or tuberculate callus; interval 5 usually with evident declivital callus, various in shape and size, usually subquadrate, occasionally rounded or strongly acute, rarely absent; striae usually distinct, with punctures evident in bottom of groove; rarely not striate, but with large strial punctures often concealed (at least in part) by waterproof coating. Prosternum usually with distinct broad median shallow to deep sulcus in front of coxae, usually also with evident rounded to acute longitudinal ridge in front of coxae, rarely sulcus and ridge absent. Abdominal sterna various in length, sterna 1 and 2 elongate, 3 and 4 very short and 5 moderately short to long; sterna 1 usually medially impressed (at least in part) in male, and usually flat to convex in female; sterna 5 with 1 to several pairs of subapical, lateral, suberect to erect, usually coarse setae. Legs short to long; femora usually symmetrically, weakly to strongly clavate, always unarmed; tibiae usually sinuate to bisinuate occasionally straight, usually inwardly curved near apex; inner tibial margin often with denticles, latter sometimes stout, each denticle with suberect seta, rarely with single large submedian spur; inner tibial margin usually with short to long, curved to straight bristles (or fine setae), occasionally with very long fine, erect to adpressed, swimming hairs; tarsomeres various in length and shape, short to long, usually sublinear to linear, occasionally subcordate, especially tarsomere 3, latter sometimes emarginate but never deeply bilobed; venter of tarsomeres usually with moderately dense subrecumbent pubescence, usually most evident on tarsomere 3, rarely subglabrous with only sparse long setae; tarsal claws usually long and fine, always free and divergent.

Female. Same as male except rostrum usually slightly, sometimes distinctly longer, with scales covering apical 1/4 sparser. Sterna 1 and 2 less concave medially.
Genitalia and associated structures. Male. Median lobe with dorsal (except orificial area) and ventral surfaces fully sclerotized, rarely membranous; many species with post-orificial, highly complex, laterally attached, dorsal process; apodemes attached at ventrolateral basal angle, very short to 1.5X as long as median lobe; internal sac simple and spiculate, or with complex sclerites. Female. Female genital characters are typical of weevils in general.
SYNONYMIES - Our analysis of *Bagous* at the world level, mainly based on the careful comparison of the complex morphology of the male genitalia, emphasizes that all Bagoini, as presently considered, appear monophyletic and possibly divisible into a very large number of monophyletic species groups, about 50-70 of the same systematic level. *Abagous* Sharp, *Parabagous* Sharp (not Schilsky), and *Bagous* subgen. *Heterobagous* Solari surely are polyphyletic since they are based only on the homoplastic tarsal structure. They and all the other Palearctic genera of Bagoini and subgenera of *Bagous* seem clearly to be monophyletic and correspond to some of the species groups which we could define. However, if we split off every monophyletic species group as a separate genus or subgenus, it appears obvious that we would create about 40-50 new higher taxa, and many of these would be monobasic. For this reason, presently we are uncomfortable with the concept of genus and multiple subgenera within Bagoini and prefer to treat all of them as species groups within the genus *Bagous*. This gives the same type of information without the danger of troublesome synonyms, postponing the final decision on the utility of some subgenera to the end of our study at the world level. On this basis *Hydronomus* Schönherr, *Memptorrhynchus* Iablokoff-Khnzorian, *Bagous* subgen. *Parabagous* Schilsky, and *Fontenellus* Hoffmann, are monophyletic plesiotypic groups that respectively we name the *B. alismatis*, *B. crispus*, *B. chevrolati* and *B. cyperorum* species groups, whereas *Probagous* Sharp, *Lyprus* Schönherr (= *Bagoimorphus* Desbrochers), *Dicranthus* Motschulsky (= *Anactodes* Brisout), *Bagous* subgen. *Pseudolyprus* Neresheimer & Wagner, and *Ephimeropus* Hochhut (= *Elmidomorphus* Cussac) are more apotypic monophyletic groups that respectively we name the *B. tempestivus*, *B. tubulus*, *B. elegans*, *B. cylindricus*, and *B. geniculatus* species groups.

CHECKLIST OF WESTERN PALEARCTIC SPECIES OF *BAGOUS*

Species	Distribution (abbreviation as in Winkler, 1932)	Host plant genera
Bagous alismatis group		
1. *Bagous alismatis* (Marsham)	E., Asm., Sib.	*Alisma*
= *B. tibialis* Boheman		*Sagittaria*
= *B. alismatis aureomicans* Gerhardt		
Bagous crispus group		
2. *B. brevipennis* Schneider & Leder	Ca., Asm. or.	-
= *B. ripicola* (Iablokoff-Khnzorian)		
Bagous chevrolati group		
3. *B. belloi* Caldara & O'Brien	Gr.	-

4. *B. epirotes* Caldara & O'Brien	Gr. b.	-
5. *B. anatolicus* Caldara & O'Brien	Asm. c.-b.	-
6. *B. osellai* Caldara & O'Brien	Asm. c.	-
7. *B. gracilentus* Desbrochers	Alg., Hi. m.?	-
= *B. elongatus* Pic		
8. *B. rudicollis* Desbrochers	Mar, Hi. m.	-
9. *B. corsicanus* Hoffmann	C., S.	-
10. *B. lyauteyi* Hoffmann	Mar.	-
11. *B. franzi* González	Hi. m.	-
12. *B. freti* Caldara & O'Brien	Asm. b.-oc.	-
13. *B. libanicus* Schilsky	Lebanon	-
14. *B. cosiensis* Caldara & O'Brien	Gr. (Sporads)	-
15. *B. andalusiacus* González	Hi. m.	-
16. *B. longirostris* Vitale	I. m., Si., S., Gr.	-
17. *B. guttatus* Desbrochers	Afr. oc., Hi.m., I. c., S., Si.	-
= *B. hipponensis* Pic.		
18. *B. marocanus* Hustache	Mar.	-
19. *B. chevrolati* Tournier	Afr. oc., Lu., Hi. m., I. c., S., C.	-
20. *B. ibericus* González	Lu., Hi. b.	-
21. *B. costulatus* Perris	I. c.-m., S., Cro., Gr. (Ion. isl.)	-
= *B. kirschi* Reitter		
22. *B. sabellai* Caldara & O'Brien	Gr.	-
Bagous cyperorum group		
23. *B. cyperorum* Peyerimhoff	Afr. oc., Chad, Arabia	-
Bagous bipunctatus group		
24. *B. puncticollis* Boheman	E.	*Helodea*
= *B. glabrirostris major* Fowler		*Hydrocharis*
= *B. puncticollis wagneri* Hoffmann		*Stratiodes*
25. *B. lutulentus* (Gyllenhal)	E., Asm., Ca.	*Equisetum*
= *B. binotatus* Stephens		
= *B. nigritarsis* Thomson		
= *B. mundanus* Boheman		
26. *B. olcesei* Tournier	Mar.	-
27. *B. robustus* Brisout	E., Asm., Afr.	*Alisma*
= *B. tenietensis* Desbrochers		
= *B. inermis* Desbrochers		
= *B rudis* Sharp		
= *B. robustoides* Neresheimer & Wagner		
28. *B. subcarinatus* Gyllenhal	E., Asm., Ca., As. c., Afr. oc.	*Ceratophyllum*
= *B. unguicularis* Hustache		

29. *B. glabrirostris* (Herbst)	E., Ca., Alg.	*Stratiodes* *Ceratophyllum*
30. *B. bagdatensis* Pic = *B. wagneri* Dieckmann	I. b., S., Balc., A., Hu., As. oc.	-
Bagous binodulus group		
31. *B. binodulus* (Herbst)	E. c. b.	*Stratiodes*
Bagous affaber group		
32. *B. affaber* Faust = *B. dilgiri* Vazirani	Syr., Pakistan, India	*Hydrilla* *Najas* *Nymphoides* *Potamogeton*
33. *B. latepunctatus* Pic	Syr., Pakistan, India	*Hydrilla* *Najas* *Potamogeton* *Myriophyllum*
Bagous tempestivus group		
34. *B. macedon* Caldara & O'Brien	Mac.	-
35. *B. czwalinai* Seidlitz = *B. tempestivus heasleri* Newbery	E. c. b.	-
36. *B. tempestivus* (Herbst) = *B. convexicollis* Boheman = *B. adspersus* Förster = *B. tessellatus* Förster = *B. dilatatus* Thomson = *B. angustulus* Thomson = *B. sjoebergi* Bruce = *B. thomsoni* Bruce	E., Sib., Asm.	*Ranunculus* *Potamogeton*
Bagous exilis group		
37. *B. exilis* Jacquelin du Val	Ga. m., Ib. m., Mar., Can.	*Frankenia* *Suaeda* *Camphorosma*
38. *B. minutissimus* Faust	Gr., R. m., Ca., Trcp.	-
39. *B. fuentei* Pic	Hi. m.	-
Bagous subruber group		
40. *B. septemcostatus* Chevrolat = *B. subcostulatus* Desbrochers = *B. gandalf* Isajev & Gratshev	Hi. m., Afr., As. oc.	-
41. *B. aliciae* Cmoluch	Pol., R., Ukraine	*Anthemis*
42. *B. subruber* Reitter = *B. tournieri* Pic	Hi. m., Gr., Afr., As. oc.	*Frankenia*
Bagous dieckmanni group		
43. *B. dieckmanni* Gratshev	R., Hu., Slovakia	-

Bagous biimpressus group		
44. *B. petro* (Herbst)	E. b. c.	*Utricularia*
= *B. chorinaeus* Fahraeus		
= *B. aubei* (Cussac)		
45. *B. biimpressus* Fahraeus	E. m., Asm., Alg., Ca., Turk.	-
= *B. frater* Jacquelin du Val		
46. *B. perparvulus* Rosenhauer	E. m., Asm., Alg.	-
= *B. mulsanti* Fauvel		
= *B. minutus* Mulsant		
Bagous geniculatus group		
47. *B. geniculatus* (Hochhut)	E. m.-or., As. oc. c., Aeg.	*Potamogeton*
= *B. sahlbergi* Schilsky		
= *B. denticulatus* Hustache		
= *B. doderoi* (Solari)		
48. *B. mucronatus* Caldara & O'Brien	As. oc., Pakistan	*Myriophyllum*
Bagous argillaceus group		
49. *B. argillaceus* Gyllenhal	E., As., Afr.	-
= *B. haematopus* Gyllenhal		
= *B. inceratus* Gyllenhal		
= *B. encaustus* Boheman		
= *B. halophilus* Rottenbacher		
= *B. leprieuri* Guillebeau		
50. B. *fremuthi* Dieckmann	As. c.	-
Bagous lutosus group		
51. *B. lutosus* (Gyllenhal)	E., As. oc. c.	*Sparganium*
= *B. validitarsus* Boheman		
= *B. caudatus* Thomson		
Bagous interruptus group		
52. *B. sardiniensis* Brisout	S., Hi. b. c.	-
53. *B. foveifrons* Hustache	Mar.	-
54. *B. bulgaricus* Angelov	Bulg., Gr. (Ion. isl.), Hu.	-
55. *B. peregrinus* Gratshev	R., Ukraine, Trcp.	-
56. *B. meregallii* Caldara & O'Brien	Asm. or., Ca. oc.	-
Bagous cylindricus group		
57. *B. cylindricus* Rosenhauer	Hi. c. m., Lu. m., Mar.	-
= *B. curtirostris* Fairmaire		
Bagous tubulus group		
58. *B. mingrelicus* Tournier	Mac., Ca., As. oc.	-
= *B. laticollis* (Desbrochers)		
= *B. syriacus* Schilsky		
59. *B. henoni* Hustache	Alg.	-

60. *B. leonhardi* Schilsky	Ca., R. m.	-
61. *B. minutus* Hochhut	Ca.	-
= *B. hochhuti* Tournier		
= *B. caucasicus* Faust		
62. *B. tubulus* Caldara & O'Brien	E. b. c. m.-or., Asm.	*Glyceria*
= *B. cylindrus* (Paykull)		*Alopecurus*
= *B. attenuatus* (Ahrens)		
= *B. angustus* Silfverberg		
63. *B. frivaldszkyi* Tournier	E. c. or.	-
Bagous elegans group		
64. *Bagous elegans* (Fabricius)	E. b. c. m.-or., As. c.	*Phragmites*
= *B. vittatus* (Motschulsky)		
65. *B. majzlani* (Kodada, Holecova & Behne)	E. b. c. m.-or.	*Glyceria*
Bagous nodulosus group		
66. *B. nodulosus* Gyllenhal	E., Sib., As. oc.	*Butomus*
Bagous validus group		
67. *B. validus* Rosenhauer	E. or., As. oc.	*Butomus*
= *B. kraatzii* Brisout		
Bagous collignensis group		
68. *B. lyali* Caldara & O'Brien	Pal.	-
69. *B. riedeli* Caldara & O'Brien	Asm. c.	-
70. *B. rotundicollis* Boheman	E .c. m.-or., Asm.	*Nymphoea*
= *B. nupharis* Apfelbeck		*Nuphar*
= *B. rotundicollis bucciarellii* Pesarini		
71. *B. longitarsis* Thomson	E. b. c.	*Myriophyllum*
= *B. arduus* Sharp		
= *B. tomlini* Sharp		
= *B. longitarsis duprezi* Hoffmann		
72. *B. collignensis* (Herbst)	E. b. c., As. c.	*Myriophyllum*
= *B. muticus* Thomson		
73. *B. claudicans* Boheman	E. b. c.	*Equisetum*
74. *B. rufimanus* Péricart	E. c. m.-or., Asm.	*Trapa*
75. *B. vivesi* González	Ib., Mar.	
76. *B. diglyptus* Boheman	E. b. c.	*Saxifraga*
= *B. curtus* Gyllenhal		
= *B. brevitarsis* Hansen		
= *B. diglyptus alpestris* Hoffmann		
Bagous brevis group		
77. *B. lutulosus* (Gyllenhal)	E., Afr.	*Juncus*
= *B. formicetorum* Jacquelin du Val		
= *B. dorsalis* Perris		

= *B. semilunatus* Desbrochers
= *B. cruentatus* Sahlberg
= *B. lutulosus temperei* Hoffmann
= *B. lutulosus pueli* Hoffmann

78. *B. lothari* Caldara & O'Brien	Serb., A.	-
79. *B. brevis* Gyllenhal	E. b. c.	*Ranunculus*
= *B. armoricanus* Hoffmann		
80. *B. revelieri* Tournier	Hi. m., C., S., Afr. oc.	
= *B. lateralis* Hustache		
Bagous transversus group		
81. *B. limosus* (Gyllenhal)	E., Sib. oc., As. oc., Afr. oc.	*Potamogeton*
= *B. laticollis* Gyllenhal		
= *B. obscurus* Rey		
= *B. marginicollis* Hustache		
Bagous frit group		
82. *B. frit* (Herbst)	E. c. b.	*Menyanthes*

Key to western Palearctic species of *Bagous*

1 - Segment 7 of antennal funicle distinctly wider than segment 6 and with pubescence distinctly denser than other segments (figs. 49, 53, 54), or elongate to subquadrate with sparse pubescence (fig. 52); tarsi short to very long, first two segments longer than wide, tarsomere 3 broadly cordate to linear (figs. 68-92)..... 2

- Segment 7 of antennal funicle transverse but as wide as segment 6, with pubescence as sparse as other segments (fig. 51) (except in *B. belloi* with funicle of only 6 segments, fig. 50); tarsi usually very short, first three segments wider than long, tarsomere 3 broadly cordate and slightly wider than tarsomere 2 (fig. 67) (except *B. cyperorum*, easily distinguishable due to complete covering of whitish polygonal scales 61

2 - Scrobe squamulate and gradually inconspicuous toward anterior margin of eye; rostrum lacking apical setae (fig. 55); prosternum lacking sulcus; ventral tarsal pubescence uniformly dense and recumbent ..... 1. *alismatis* (Marsham) (fig. 1)

- Scrobe glabrous and distinctly reaching at least proximity of anterior margin of eye; rostrum with more or less numerous apical setae (figs. 56-62); prosternum generally with sulcus; ventral tarsal pubescence sparse to dense, recumbent to erect.....3

3 - Rostrum with apicolateral carina on each side; midtibiae along inner surface with denticles stouter and more numerous than those of foretibiae; elytra short, markedly convex; tarsi short, with tarsomere 3 broadly cordate ..... 2. *brevipennis* Schneider & Leder (fig. 2)

- Rostrum lacking apicolateral carina on each side; midtibiae along inner surface either unarmed or with denticles like those of foretibiae; elytra short to elongate; tarsi short to elongate, with tarsomere 3 cordate to linear 4

4 - Club segment 1 glabrous (fig. 52)..... 5

- Club segment 1 uniformly pubescent (figs. 53-54) 9

5 - Tibiae with numerous distinct stout denticles along inner surface; prosternum lacking sulcus; segment 2 of antennal funicle distinctly longer than segment 1 (fig. 52) 6

- Tibiae indistinctly denticulate to unarmed along inner surface; prosternum with scarcely developed sulcus; segment 2 of antennal funicle as long as segment 1 7

6 - Apices of elytra distinctly acuminate, conjointly strongly emarginate (fig. 64); elytral striae shallow, narrow, with punctures minute, scarcely evident..... ..... 48. *mucronatus* Caldara & O'Brien n. sp.

- Apices of elytra subacuminate, conjointly slightly emarginate (fig. 63); elytral striae moderately deep, moderately narrow, with punctures small, evident .... 47. *geniculatus* (Hochhut) (fig. 31)

7 - Elytra short, 1.20X as long as wide, strongly convex, globose; antennae uniformly reddish; rostrum robust and short, about 0.65X as long as pronotum ..... 44. *petro* (Herbst) (fig. 29)

- Elytra more elongate, 1.45-1.50X as long as wide, less convex; antennal scape and funicle reddish, club blackish; rostrum less robust, moderately short, about 0.85X as long as pronotum. 8

8 - Elytral striae shallow, with punctures minute, scarcely evident; pronotum with sides behind round area not impressed..... 46. *perparvulus* Rosenhauer

- Elytral striae distinct, with punctures medium-sized, distinct; pronotum with sides behind round area slightly impressed..... 45. *biimpressus* Fåhraeus (fig. 30)

9 - Elytra elongate, 1.75-2.00X as long as wide, as wide as pronotum..... 10

- Elytra shorter, at most 1.50X as long as wide, slightly to markedly wider than pronotum .. 18

10 - Rostrum subrectangular, short, about 0.45X as long as pronotum, scarcely sexually dimorphic ..... 57. *cylindricus* Rosenhauer (fig. 36)

- Rostrum cylindrical, longer, distinctly more elongate in male than in female (male 0.60-0.80X and female 0.70-1.20X as long as pronotum)..... 11

11 - Body large (length 4.20-9.70 mm); elytra vittate, with scales not pitted, irregular in shape (rounded to indefinitely shaped), markedly imbricate, confluence of intervals 3 and 9 markedly raised forming long posteriorly-projecting process; antennal funicle with segment 2 distinctly longer than segment 1, and segment 7 distinctly longer than wide; legs very long, tarsomere 3 more than 4X longer than wide..... 12

- Body medium-sized (length 2.30-4.20 mm); elytra fasciate-maculate, with scales pitted, rounded and not imbricate, confluence of intervals 3 and 9 slightly swollen and not forming posteriorly-projecting process; antennal funicle with segment 2 as long as segment 1, and segment 7 transverse; legs long, tarsomere 3 at most 2.5X longer than wide..... 13

12 - Vestiture of intervals 2, 4 and 6 dark from base to apex; process of confluence of intervals 3 and 9 longer (about 2.5X longer than wide); elytra 2.50-2.60X longer than wide; pronotum slightly longer than wide ..... 64. *elegans* (Fabricius)

- Vestiture of intervals 2 and 4 dark at most in basal 2/3; process of confluence of intervals 3 and 9 shorter (about 1.5X as long as wide); elytra about 2.30X as long as wide; pronotum slightly shorter than wide ..... 65. majzlani (Kodada, Holecové & Behne)

13 - Tarsomere 3 subcordate, wider at apex than tarsomere 2 (figs. 76-77) 14

- Tarsomere 3 linear, narrow, similar in size and as wide at apexas tarsomere 2 (figs. 78-79). 15

14 - Elytra shorter, about 0.70X as long as wide, with caudal prolongation short; pronotum with sides slightly but distinctly rounded from base; tarsomere 3 distinctly wider than tarsomere 2 (fig. 76)..... 58. *mingrelicus* Tournier (fig. 38)

- Elytra longer, about 0.90X as long as wide, with caudal prolongation elongate; pronotum with sides subrectilinear in basal 1/2; tarsomere 3 only slightly wider than tarsomere 2 (fig. 77) .... 59. *henoni* Hustache

15 - Pronotum slightly longer than wide, subparallel-sided, with sides not rounded behind apical constriction; tarsomeres more elongate (fig. 79); rostrum nearly straight from antennal insertion to apex in lateral view (fig. 62) ..... 63. *frivaldszkyi* Tournier (fig. 39)

\- Pronotum wider than long, with sides weakly rounded from base and weakly to moderately rounded behind apical constriction; tarsomeres less elongate (fig. 78); rostrum curved from base to apex in lateral view (fig. 61) 16

16 - Body slender, elytra 2.10-2.15X as long as wide; pronotum weakly rounded from base, with sides weakly rounded behind apical constriction; elytral striae with indistinct punctures; antennae inserted at basal 1/3; tarsi, antennal scape and funicle reddish brown; pronotum very slightly wider than long ..... 62. *tubulus* Caldara & O'Brien (fig. 37)

\- Body moderately slender, elytra 1.80-1.85X as long as wide; pronotum moderately rounded from base, with sides moderately rounded behind apical constriction; elytral striae with distinct punctures; antennae inserted just behind middle; tarsi, antennal scape and funicle reddish; pronotum moderately wider than long 17

17 - Humeri evident, obliquely angulate..... 60. *leonhardi* Schilsky

\- Humeri indistinct..... 61. *minutus* Hochhut

18 - Tarsomere 3 broadly cordate, wider than long, distinctly wider than tarsomere 2 (figs. 68-71). 19

\- Tarsomere 3 subcordate to linear, at most as wide as long, slightly wider than or as wide as tarsomere 2 (figs. 72-75 and 80-92)..... 27

19 - Elytra long, 1.5X as long as wide, with caudal prolongation longer ..... 51. *lutosus* (Gyllenhal) (fig. 33)

\- Elytra shorter, only 1.3X as long as wide, with caudal prolongation shorter..... 20

20 - Pronotum transverse, only slightly narrower than elytra at base; elytra lacking antedeclivital white macula on interval 3; body robust, length 3.40-5.50 mm..... 67. *validus* Rosenhauer (fig. 41)

\- Pronotum distinctly narrower than elytra at base; elytra with antedeclivital white macula on interval 3; body usually slender, length 2.20-4.80 mm..... 21

21 - Pronotum with straight, usually parallel sides; disc of elytra strongly transversely angulately impressed across basal 1/3 .....24. *puncticollis* Boheman (fig. 16)

\- Pronotum with more or less rounded sides; disc of elytra at most weakly transversely angulately impressed across basal 1/3 22

22 - Sides of pronotum distinctly rounded; tarsi usually darker than tibiae; tarsomere 3 wider (figs. 70-71)..... 23

\- Sides of pronotum slightly rounded; tarsi of same color as tibiae, usually reddish brown; tarsomere 3 narrower (figs. 68-69) 26

23 - Elytra broad, about 1.20X as long as wide, distinctly convex on disc, globose, lacking calli ..... 56. *meregallii* Caldara & O'Brien n. sp. (fig. 35)

\- Elytra more or less rectangular, 1.35-1.40X as long as wide, nearly flat on disc, with weakly developed but evident antedeclivital callus on interval 3 24

24 - Body usually larger, length 3.00-4.80 mm; pronotum usually widest in basal 1/2 very near middle.....27. *robustus* Brisout

\- Body usually smaller, length 2.20-3.20 mm; pronotum usually widest at middle.....25

25 - Tarsomere 3 slightly longer than broad, about 1.5X as wide as tarsomere 2 (fig. 70); tarsi and antennae dark brown to blackish; vestiture often darker, with more evident whitish vittae on pronotum and whitish maculae on antedeclivital portion of interval 3 .....

..... 25. *lutulentus* (Gyllenhal) (fig. 19)

- Tarsomere 3 slightly wider than long, about 2.0X as wide as tarsomere 2; tarsi and antennal funicle and basal 1/2 of scape reddish brown to brown; vestiture usually lighter, with less contrasted vittae on pronotum and antedeclivital maculae on interval 3.....26. *olcesei* Tournier

26 - Pronotum small, without distinct transverse carina on basal margin; elytra 1.7X as wide as pronotum, apparently more quadrate due to nearly indistinct caudal prolongation; dorsal vestiture usually with dark brown, pale brown and whitish scales; tarsomere 3 moderately wider than tarsomere 2 (fig. 68) ..... 29. *glabrirostris* (Herbst) (fig. 17)

- Pronotum slightly more robust, with distinct sinuate transverse carina on basal margin in median 1/2; elytra 1.6X as wide as pronotum, apparently more rectangular due to distinct caudal prolongation; dorsal vestiture usually with blackish and white scales; tarsomere 3 slightly wider than tarsomere 2 (fig. 69) ..... 30. *bagdatensis* Pic (fig. 18)

27 - Pronotum with sides markedly divergent from base, widest at apical 1/3 28

- Pronotum with sides more or less parallel in basal 2/3, at most slightly divergent from base..34

28 - Punctures of metasternum and abdomen large, irregularly arranged, forming broad concavities, evident, larger than scales; rostrum with median basal carina.....29

- Punctures of metasternum and abdomen small to moderate in size, regularly arranged, scarcely evident, covered with scales; rostrum lacking median basal carina 30

29 - Elytra usually with punctures of striae as wide as intervals, with antedeclivital callus of interval 3 evident and with declivital callus of interval 5 well-developed .....
..... 32. *affaber* Faust (fig. 22)

- Elytra usually with punctures of striae narrower than intervals, with antedeclivital callus of interval 3 scarcely evident and with declivital callus of interval 5 moderately developed .....
..... 33. *latepunctatus* Pic

30 - Inner surface of tibiae with distinct minute denticles; striae with punctures large, as wide as intervals .....81. *limosus* (Gyllenhal) (fig. 47)

- Inner surface of tibiae with indistinct denticles; striae with punctures small to medium-sized, narrower than intervals. 31

31 - Segment 2 of antennal funicle distinctly longer than segment 1; prosternal sulcus deep, with side margins sharply raised 32

- Segment 2 of antennal funicle only slightly longer than segment 1; prosternal sulcus moderately shallow, with side margins scarcely raised.....33

32 - Declivital callus of elytral interval 5 weakly developed ..... 52. *sardiniensis* Brisout (fig. 34)

- Declivital callus of elytral interval 5 well-developed .....53. *foveifrons* Hustache

33 - Length 2.80-3.30 mm; declivital callus of elytral interval 5 weakly developed; strial punctures small, moderately shallow, scarcely evident; pronotum weakly rounded behind constriction, slightly impressed behind round area; elytral caudal prolongation more elongate, declivity at 45 degrees (in relation to dorsal plane); rostrum in dorsal view with sides weakly expanding in apical 1/3; frons with shallow median fovea ..... 55. *peregrinus* Gratshev

- Length 2.10-2.70 mm; declivital callus of elytral interval 5 distinct; strial punctures medium-sized, deep, evident; pronotum distinctly rounded behind constriction, distinctly impressed behind round area; elytral caudal prolongation shorter, declivity at 75 degrees (in relation to dorsal plane); rostrum in dorsal view with sides distinctly expanding in apical 1/3; frons not sulcate or foveate.....54. *bulgaricus* Angelov

34 - Scales smooth and shining.....35

- Scales subgranulate and matte 36

35 - Frons with fovea or sulcus more or less evident; eyes moderately large, 0.50X as long as head across ocular lobes; rostrum in both sexes robust; declivital callus of interval 5 weakly developed; body on average larger, length 2.60-4.80 mm. ..... 49. *argillaceus* Gyllenhal (fig. 32)

- Frons flat, lacking fovea or sulcus; eyes large, 0.70X as long as head across ocular lobes; rostrum in both sexes slender; declivital callus of interval 5 very weakly developed; body on average smaller, length 2.30- 3.50 mm ..... 50. *fremuthi* Dieckmann

36 - Elytra with strong antedeclivital callus on interval 3; base of interval 1 strongly prominent, smooth and shining; pronotum with area of plumose scales of basal declivity broad, convex and distinct; median impression of sternum 5 with carinate margins with row of long erect setae; body large, length 4.50-5.20 mm ..... 31. *binodulus* (Herbst) (fig. 21)

- Elytra with interval 3 lacking antedeclivital callus; base of elytra and pronotum and sternum 5 lacking distinctive features; body small to large 37

37 - Elytra with declivital callus of interval 5 very well-developed; body robust, length 4.30-5.20 mm ..... 66. *nodulosus* Gyllenhal (fig. 40)

- Elytra with declivital callus of interval 5 at most weakly developed; body small to medium-sized 38

38 - Head with moderate swelling beside eye; odd-numbered elytral intervals more convex than even-numbered intervals and with alternate maculae of light and dark scales; legs short 39

- Head lacking swelling beside eye; odd-numbered elytral intervals at most only slightly more convex than even-numbered intervals, and vestiture with various patterns; legs more or less elongate 41

39 - Pronotum with small punctures, intervals between punctures distinctly convex, granulose, larger than punctures; elytra subquadrate, 1.30X as long as wide; tarsomere 2 and 3 subglobose, nearly as wide as long (fig. 81); antennae dark brown. ..... 42. *subruber* Reitter (fig. 26)

- Pronotum with large punctures, intervals between punctures more or less convex, narrower than punctures; elytra more rectangular, 1.40-1.55X as long as wide; tarsomere 2 and 3 slightly but distinctly longer than wide (fig. 82); antennae dark reddish 40

40 - Rostrum with dorsal curvature rounded at antennal insertion; elytra slightly longer, 1.50-1.55X as long as wide ..... 40. *septemcostatus* Chevrolat (fig. 27)

- Rostrum with dorsal curvature angulate at antennal insertion; elytra slightly shorter, 1.40-1.45X as long as wide ..... 41. *aliciae* Cmoluch

41 - Body small, length 1.30-1.80 mm 42

- Body length more than 1.90 mm 44

42 - Pronotum subquadrate, with sides weakly rounded, with sulcus along midline more distinct in apical 1/2; rostrum robust, distinctly shorter than pronotum ..... 39. *fuentei* Pic

- Pronotum subglobose, with sides distinctly rounded, lacking sulcus along midline; rostrum slender, nearly as long as pronotum 43

43 - Elytra with very short indistinct caudal prolongation; rostrum cylindrical, in lateral view strongly curved only at base, then slightly arcuate (fig. 59). ..... 37. *exilis* Jacquelin du Val (fig. 25)

- Elytra with short distinct caudal prolongation; rostrum subrectangular, in lateral view strongly curved in basal 1/2 (fig. 60) ..... 38. *minutissimus* Faust

44 - Elytra flat on disc, basal 1/2 of first two elytral intervals completely flat; body slender, elytra elongate, 1.5X as long as wide 45

- Elytra more or less convex on disc, basal 1/2 of first two elytral intervals usually slightly to more or less regularly convex (rarely flattened, then elytra short); body slender to robust, more or less elongate 47

45 - Tarsi short, tarsomeres nearly as long as wide (fig. 89), covered with dense coarse setae; segments 6 and 7 of antennal funicle with pubescence distinctly denser than other segments and scarcely distinguishable from club segments (fig. 53) ..... 68. *lyali* Caldara & O'Brien n. sp.

- Tarsi very long, tarsomeres very much longer than wide (fig. 88), covered with sparse long fine setae; only segment 7 of antennal funicle with pubescence distinctly denser than other segments and scarcely distinguishable from club segments (fig. 54) 46

46 - Rostrum distinctly longer than pronotum, in female distinctly longer than in male, in lateral view very weakly curved ..... 70. *rotundicollis* Boheman (fig. 43)

- Rostrum nearly as long as pronotum, scarcely sexually dimorphic, in lateral view distinctly curved ..... 69. *riedeli* Caldara & O'Brien n. sp. (fig. 42)

47 - Body slender; elytra elongate, 1.6-1.9X as long as wide; rostrum distinctly sexually dimorphic, in male subrectangular, robust and shorter, in female subcylindrical, slender and more elongate (figs. 57-58) 48

- Body robust; elytra shorter, at most 1.5X as long as wide; rostrum scarcely sexually dimorphic, in both sexes subcylindrical, slender and moderately elongate 50

48 - Tarsomere 3 subcordate, slightly but distinctly wider at apex than tarsomere 2 (fig. 73); elytra slightly more robust and less elongate, 1.6-1.7X as long as wide, slightly divergent from base, widest in apical 1/3 ..... 35. *czwalinai* Seidlitz

- Tarsomere 3 sublinear to linear, of same shape and width as tarsomere 2 (figs. 74-75); elytra slightly more elongate, 1.7-1.9X as long as wide, nearly parallel-sided 49

49 - Tarsi more slender and slightly longer (fig. 75); pronotum slightly smaller; elytra 1.45X as wide as pronotum ..... 34. *macedon* Caldara & O'Brien n. sp. (fig. 23)

- Tarsi slightly more robust (fig. 74); pronotum slightly larger; elytra 1.35X as wide as pronotum ..... 36. *tempestivus* (Herbst) (fig. 24)

50 - Pronotum with distinct sulcus along midline, often more evident in apical 1/2 51

- Pronotum lacking sulcus or with very shallow narrow sulcus along midline 56

51 - Frons with deep fovea; inner surface of foretibiae with distinct denticles; body larger, length 2.70-5.10 mm 52

- Frons at most with shallow fovea; inner surface of foretibiae lacking denticles; body smaller, length 1.90-3.20 mm 53

52 - Body smaller (length 2.70-3.60 mm); frons distinctly convex; tarsomere 3 as wide as long, subcordate (fig. 92) .....82. *frit* (Herbst) (fig. 48)

- Body larger (length 4.50-5.10 mm); frons weakly convex; tarsomere 3 slightly longer than wide, sublinear (fig. 83) .....43. *dieckmanni* Gratshev (fig. 28)

53 - Tarsomere 3 subquadrate, as long as wide (fig. 90) .....77. *lutulosus* (Gyllenhal) (fig. 45)

- Tarsomere 3 sublinear, slightly but distinctly longer than wide (fig. 91) 53

54 - Elytra more elongate, 1.5X as long as wide; pronotum subquadrate, small; elytra 1.4X as wide as pronotum.....80. *revelieri* Tournier

- Elytra less elongate, only 1.4X as long as wide; pronotum distinctly wider at apical 1/3, larger; elytra only 1.3X as wide as pronotum 55

55 - Head and pronotum moderately rugulose; pronotum distinctly rounded behind apical constriction, more distinctly impressed behind round area; elytral with odd-numbered intervals slightly more convex and elevated than even-numbered intervals ..... 79. *brevis* Gyllenhal

- Head and pronotum weakly rugulose; pronotum weakly rounded behind apical constriction, more weakly impressed behind round area; all elytral intervals weakly convex ..... 78. *lothari* Caldara & O'Brien n. sp. (fig. 46)

56 - Tarsi very long, tarsomeres 2 and 3 subtriangular, about 3.0X as long as wide (fig. 72); striae shallow, with punctures wider than intervals; elytra with only antedeclivital small white macula covering interval 3 .....28. *subcarinatus* Gyllenhal (fig. 20)

- Tarsi shorter, tarsomeres 2 and 3 subcylindrical, at most 1.5X as long as wide (figs. 84-87); striae deep, with punctures scarcely evident; elytra with antedeclivital white macula usually covering intervals 3 and 4 and with other more or less broad maculae.....57

57 - Tarsi with claw segment 6.0X as long as wide and with tarsomeres 2 and 3 about 1.5X as long as wide (fig. 84); elytra flattened on disc and widest behind middle ..... 71. *longitarsis* Thomson

- Tarsi with claw segment 4.0X as long as wide and with tarsomere 2 and 3 as long as or slightly longer than wide (figs. 85-87); elytra slightly convex on disc and widest in front of middle or subparallel.....58

58 - Sculpture of pronotum fine, not rugose or rugulose.....59

- Sculpture of pronotum weakly to moderately rugulose.....60

59 - Tarsomere 3 slightly but distinctly longer than wide (fig. 85); elytra moderately slender, usually of same width in basal 2/3 .....74. *rufimanus* Pèricart

- Tarsomere 3 shorter, about as long as wide (fig. 86); elytra slightly more robust, usually widest in basal 1/2 .....75. *vivesi* González

60 - Body smaller, length 2.20-2.90 mm; antennal insertion in male at apical 1/3 of rostrum, in female at apical 2/5; rostrum distinctly widened at apex. ..... 72. *collignensis* (Herbst)

- Body larger, length 2.80-3.30 mm; antennal insertion in male at middle of rostrum, in female just behind middle of rostrum; rostrum slightly widened at apex. ..... 73. *claudicans* Boheman

61 - Body larger, length 3.50-3.70 mm; integument completely hiddened by smooth whitish scales; elytra covered with irregularly shaped polygonal scales arranged in two nearly regular rows on each interval; elytral intervals nearly flat; rostrum cylindrical in both sexes, with sparse setae; tarsomere 3 subcordate, nearly as long as wide, not wider at apex than tarsomere 2 ..... 23. *cyperorum* Peyerimhoff (fig. 15)

- Body smaller, length 1.50-2.80 mm; scales subgranulate, mainly dark in color and often with maculae of whitish scales arranged on odd-numbered elytral intervals; elytra with odd-numbered intervals often more convex than even-numbered intervals; rostrum usually with fringe of coarse setae along ventral margin in basal 1/2 (often lacking in denuded specimens); tarsomeres very short, wider than long, with tarsomere 3 broadly cordate (fig. 67)..... 62

62 - Odd-numbered elytral intervals with recumbent to subrecumbent short setae..... 63

- Odd-numbered elytral intervals with suberect to erect, short to long setae 66

63 - Elytra short, about 1.3X as long as wide, with sides distinctly rounded; pronotum with sides rounded, distinctly transverse behind apical constriction 64

- Elytra elongate, about 1.5X as long as wide, with sides slightly rounded to nearly parallel; pronotum subquadrate behind apical constriction..... 65

64 - Prosternal sulcus deep, with sharply raised lateral margin just in front of coxae; elytral setae very short, inconspicuous ..... 19. *chevrolati* Tournier (fig. 13)

\- Prosternal sulcus moderately shallow, with moderately raised lateral margin just in front of coxae; elytral setae short but distinct .....20. *ibericus* González

65 - Pronotum with apical constriction dorsally distinct and uniform, with intervals with granules smaller than punctures. ..... 5. *anatolicus* Caldara & O'Brien n. sp.

\- Pronotum with apical constriction dorsally shallower medially, with intervals with granules larger than punctures .....4. *epirotes* Caldara & O'Brien n. sp. (fig. 4)

66 - Head with strong swelling beside eye..... 67

\- Head at most with weak swelling beside eye..... 68

67 - Antennal funicle with 6 segments (fig. 50); pronotum with flat intervals between punctures..... ..... 3. *belloi* Caldara & O'Brien n. sp. (fig. 3)

\- Antennal funicle with 7 segments; pronotum with distinct granules between punctures .... 15. *andalusiacus* González (fig. 10)

68 - Pronotal disc appearing granulose between punctures, with distinctly rounded granules regularly separated and larger than puntures 69

\- Pronotal disc rugulose to coarsely rugose, intervals between puntures with more or less acuminate granules smaller than punctures 71

69 - Elytra long, about 1.5X as long as wide; elytral setae shorter than width of interval; pronotum with slightly rounded to subparallel sides, disc slightly convex..... ..... 7. *gracilentus* Desbrochers (fig. 6) (*)

\- Elytra short, about 1.3X as long as wide, subglobose; elytral setae at least as long as width of interval; pronotum with distinctly rounded sides, disc convex 70

70 - Pronotum with apical constriction moderate; elytral sides subparallel behind humeri, weakly arcuately expanding in middle..... 21. *costulatus* Perris (fig. 14)

\- Pronotum with apical constriction weak; elytra gradually expanding behind humeri to declivity ..... 22. *sabellai* Caldara & O'Brien n. sp.

71 - Elytra short, only 1.3X as long as wide, with distinctly rounded sides .....16. ..... *longirostris* Vitale (fig. 11)

\- Elytra more elongate, nearly 1.5X as long as wide, with slightly rounded to subparallel sides. 72

72 - Pronotum nearly as long as wide behind apical constriction 73

\- Pronotum distinctly transverse behind apical constriction 74

73 - Pronotum with small punctures; elytra with parallel sides, with disc flattened..... ..... 18. *marocanus* Hustache

\- Pronotum with large punctures; elytra with slightly rounded sides, with disc convex..... ..... 17. *guttatus* Desbrochers (fig.12)

74 - Pronotum with moderately deep punctures; intervals between punctures moderately narrower than punctures, with distinctly acuminate granules 75

\- Pronotum with very deep punctures; intervals between punctures distincly narrower than punctures, with scarcely acuminate to smooth granules..... 77

75 - Pronotum widest behind apical constriction, rugose; elytra with odd-numbered intervals weakly more convex than even-numbered intervals ..... 6. *osellai* Caldara & O'Brien n. sp. (fig. 5)

(*) See remarks of 13. *Bagous libanicus* Schilsky

- Pronotum with subparallel sides behind apical constriction, rugulose to rugose; elytra with odd-numbered intervals distinctly more convex than even-numbered intervals.....76

76 - Pronotum rugulose, with granules mostly separated from each other ..... 12 *freti* Caldara & O'Brien n. sp.

- Pronotum rugose, with granules mostly joined in short rugae..... 14. *cosiensis* Caldara & O'Brien n. sp.

77 - Elytra with odd-numbered intervals distinctly more convex than even-numbered intervals... 78

- Elytra with odd-numbered intervals weakly more convex than even-numbered intervals 79

78 - Pronotum with apical constriction sudden and strong, with sides strongly rounded and widest behind apical constriction, with punctures small and regular in shape ..... 11. *franzi* González (fig. 9)

- Pronotum with apical constriction moderate, with sides weakly rounded and subparallel behind apical constriction, with punctures large and irregular in shape..... 10. *lyauteyi* Hoffmann (fig. 8)

79 - Elytra subparallel behind humeri to declivity..... 8. *rudicollis* Desbrochers

- Elytra subparallel behind humeri, weakly arcuately expanding in middle..... 9. *corsicanus* Hoffmann (fig. 7)

Taxonomic treatment of western Palearctic species of *Bagous*

Species are arranged phylogenetically, by species group, and by species within each group, in accordance with our preliminary cladistic analysis.

Bagous alismatis group

This group is characterized by: scrobe not reaching eye and squamose; rostrum lacking dorsal and lateral apical setae (fig. 55); ocular lobe weak; prosternum completely lacking median longitudinal sulcus; elytra lacking declivital calli; inner margin of tibiae lacking denticles; tarsomeres ventrally with dense subrecumbent to suberect pubescence, dorsally with coarse scale-like long setae; median lobe with internal sac at base with sclerite complex formed by overlapped plates (fig. 93).

Presently this group includes *B. alismatis*, largely widespread in the western Palearctic region, and an undescribed closely related Chinese species.

1. *Bagous alismatis* (Marsham) (figs. 1, 49, 55, 93, 185) **(n. comb.)**

Curculio alismatis Marsham, 1802: 273.
Rhynchaenus alismatis (Marsham), Gyllenhal, 1813: 87.
Hydronomus alismatis (Marsham), Gyllenhal, 1836: 317. Schönherr, 1826: 231. Boheman, 1845: 183. Schilsky, 1907: 40. Urban, 1926: 109. Hustache, 1930: 236. Hoffmann, 1954: 713. Dieckmann, 1983: 374. Lohse, 1983: 57.
Bagous tibialis Boheman, 1845: 87. Brisout, 1863: 522.
Hydronomus alismatis var. *aureomicans* Gerhardt, 1899: 219. Schilsky, 1907: 40.
Hydronomus alismatis var. *brunneipes* Hoffmann, 1954: 714 (unavailable name).
Hydronomus alismatis var. *geniculatus* Hoffmann, 1954: 714 (unavailable name).

Redescription - Male. Body medium-sized, elongate-subcylindrical, moderately slender. Rostrum (fig. 55) moderately short, 0.85X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; subangulate at antennal

insertion; basolateral sulcus lacking; ventral margin weakly subangulate, not carinate; parallel-sided, not expanding to apex; scales dense in basal 2/3, not granulate, contiguous, pitted, round, whitish, sparser apically. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.50X as long as head across ocular lobes; scales granulate, contiguous, pitted, round, gray-brown and white; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.68X as wide as head across eyes, weakly convex; not sulcate nor foveate medially. Antennae inserted just behind apical 1/3; scape moderately short, moderately slender, clavate; scape and funicle reddish; funicle long, 1.00X as long as scape; segment 1 stout, segment 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments (fig. 49); club uniformly pubescent, broad-oval, 0.48X as long as funicle, reddish brown, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.88X as long as broad; sides subparallel, weakly expanding from base; apical constriction lacking; median sulcus lacking; disc transversely weakly convex, not rugose or rugulose; apical and marginal setae moderate in number, scarcely evident, short, recumbent to subrecumbent, curved, coarse; scales subgranulate, finely pitted to indistinctly pitted, contiguous to subcontiguous, round, moderately brownish; with 3 vittae; median vitta narrow, complete, indefinite, uneven, whitish; lateral vitta broad, whitish; ocular lobes moderately developed, reddish black. Prosternal sulcus lacking. Scutellum large. Elytra subparallel behind humeri to declivity; 1.72X as long as wide at widest point; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, obliquely rounded; even-numbered intervals weakly convex to flat, odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, recumbent, curled, coarse, pale; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures minute, scarcely evident, round, narrow, shallow, not wider than strial grooves; scales subgranulate, subcontiguous to contiguous, finely pitted to non-pitted, round, arranged irregularly, usually with 3 or more scales across intervals, moderately black, brown, and white; fasciate-maculate; antedeclivital area of interval 3 with macula white; cuticle black. Metathoracic wing fully developed. Mesosternal process small, triangular, very narrow between coxae. Metasternum 1.29X as long as sternum 1. Sternum 1 with median impression shallow, moderately narrow, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.05X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 flattened, apically declivous; 1.21X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally flat; with pair of small apical tubercles; with median impression moderately deep, broad, transverse; with one pair of apicolateral erect, coarse setae; 0.79X as long as 3 & 4 together, 0.65X as long as 2, 0.55X as long as 1. Legs moderately long; femora subclavate, black, with basal half reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate; outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with several moderately short bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, subequal to width of tibial apex. Tarsi moderately short, broad, reddish; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, subcordate, rather deeply emarginate. Length, pronotum and elytron: 2.55 mm.

Female. Same as male except: rostrum 0.89X as long as pronotum. Antennae inserted at apical 2/5. Sternum 1 with median impression shallow, broad, interrupted (basal and apical), convex in middle 1/2.

GENITALIA AND ASSOCIATED STRUCTURES. Male (fig. 93). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex somewhat elongate, subacute, narrowly rounded, in lateral view robust, strongly curved, acute; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin indistinct, slightly emarginate. Orifice transverse, short; proximal margin distinct, not sclerotized. Apodemes long, 1.55X as long as median lobe. Internal sac without orificial sclerites; with very large basal sclerite complex. Tegmen with cap-piece. Female (fig. 185). Sternum VIII with apical setae several, short, slender; fenestral area closed, elongate-narrow. Apodemes moderately divergent near apex only, contiguous to base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, with outline almost uniformly continuous with body; spermathecal gland arising subapically on body; nodulus more or less flat. Gonocoxae long, slender; apical 1/2 strongly narrowed, strongly arcuate. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin broadly truncate. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - Although widely distributed, the populations of this species are highly homogeneous. The fasciate-maculate elytral pattern is more or less distinct, with the light scales varying from white to pale tan and the dark scales from brown to blackish. The sides of the pronotum vary from parallel to slightly rounded.

REMARKS AND COMPARATIVE NOTES - *Bagous alismatis* is easily distinguished from all other described species of *Bagous* by the shape of the scrobe which does not reach the eyes and the fact that the scrobe is squamose. Other useful characteristics which define the species are the prosternum lacks a sulcus, the tarsi ventrally have short and dense bristles, and the morphology of the genitalia is distinctive. However, we have an undescribed taxon from China which is closely related to *B. alismatis* but which differs in the morphology of the median lobe and in its host plant.

BIOLOGICAL NOTE - This species lives on *Alisma plantago* L. and *Sagittaria sagittifolia* L. The adults eat the leaves of both plants. The larvae produce irregular tunnels in leaves of the host plants, then excavate a hole in the main veins or in the petiole of the leaf when ready to pupate. The pupation period lasts 6-19 days.

TYPE LOCALITY - England (without further detail).

NOTE ON TYPE SPECIMENS - *Curculio alismatis* was described by Marsham based on specimens collected in England. In the Marsham collection (BMNH) under this name there are several specimens of the species currently named *Hydronomus alismatis* but none of them have the absolute requisites of syntype (Lyal, pers. comm. 1994).

SYNONYMIES - *Bagous tibialis* was described based on specimens from "Germania" and synonymized with *B. alismatis* by Brisout (1863) and Schilsky (1907). We did not find the types but have no doubts of the synonymy after reading the original description. The same is true for the var. *aureomicans* described from specimens from Liegnitz (Germany).

Hoffmann (1954) described two varieties of *B. alismatis* named *brunneipes* and *geniculatus* collected together with the typical form. Therefore, according to the ICZN Art. 45 e,

f, g, the names must be considered as infrasubspecific and excluded from the nomenclature. Moreover, the name *geniculatus* could not be used since it was already occupied in the genus *Bagous* by *geniculatus* (Hochhut, 1847) (junior secondary homonymy). We did not find these "varieties" in the Hoffmann collection (MHNP).

RANGE - Europe, Anatolia, Siberia.

MATERIAL EXAMINED - We studied about 700 specimens from Russia, Germany, Switzerland, France, England, Austria, Italy, Croatia, Serbia, and Turkey.

Bagous crispus group

The species group is characterized by: rostrum with apicolateral carina; head and rostrum with numerous prominent coarse suberect curved scale-like setae; prosternal sulcus at most weakly indicated, essentially not present; elytra lacking declivital calli, with setae of odd-numbered intervals surrounded by rosette of scales of same color; tibiae almost straight to apex along dorsal margin, denticulate along inner margin, with denticles stouter and more numerous on midtibiae; tarsi short, tarsomere 3 cordate; median lobe with internal sac at base with sclerite complex formed by overlapped plates (fig. 94); female sternum VIII with apodemes strongly divergent, fully separated and arising laterally on plate, with basal point of delimitation not distinguishable (arms and apodemes apparently forming two straight rods) (fig. 184).

This group has several representatives in the Afrotropical region, included *B. crispus* Faust on which the species group name is based, two in India and only one, *B. brevipennis* in the western Palearctic region.

2. *Bagous brevipennis* Schneider & Leder (figs. 2, 94, 184)

Bagous brevipennis Schneider & Leder, 1879: 29. Schilsky, 1907: 52.
Memptorrhynchus ripicola Iablokoff-Khnzorian, 1960: 254 (**n. syn.**)

REDESCRIPTION - Male. Body medium-sized, short, broad-oval, robust. Rostrum short, 0.70X as long as pronotum, black, subcylindrical; dorsal curvature strong and uneven; ventral curvature weak and uneven; strongly depressed in apical 1/2; apicolateral carina distinct on each side; basolateral sulcus shallow, broad, long, coarsely punctate; ventral margin angulate, subcarinate; sides subparallel; scales dense in basal 1/2, subgranulate, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes flat, medium-sized, 0.49X as long as head across ocular lobes; scales subgranulate, contiguous, finely pitted to not pitted, round, gray brown; supraocular setae few, long, distinct, subrecumbent, curved, coarse, scale-like, linearly arranged. Frons very broad, 0.76X as wide as head across eyes, moderately convex; not sulcate nor foveate medially. Antennae inserted at apical 2/5; scape moderately short, moderately slender, subclavate; scape and funicle blackish; funicle long, 0.96X as long as scape, segment 1 stout, segment 2 slender and shorter than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club broad-oval, 0.50X as long as funicle, black, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.90X as long as broad; strongly rounded from base; apical constriction moderately weak, in apical 1/5, dorsally distinct and uniform; sides moderately rounded and not impressed somewhat behind constriction; median sulcus lacking; disc transversely stron-

gly convex, not rugose or rugulose; apical and marginal setae moderate in number, moderately distinct, short, subrecumbent, curved, coarse; scales granulate, not pitted, contiguous, round, mainly pale brown; with median vitta only, median vitta narrow, interrupted, distinct, straight, whitish; with several distinct brown maculae on disc; ocular lobes moderately developed, dark reddish. Prosternal sulcus shallow, broad, subparallel, not angulate; side margins scarcely raised; lateral margin just in front of coxae (lateral view) not more distinctly raised. Scutellum small. Elytra subparallel behind humeri, weakly arcuately expanding in middle; 1.23X as long as wide at widest point; disc area strongly convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, rounded, nonacute, somewhat produced; even-numbered intervals flattened; odd-numbered intervals not more convex nor elevated, with setae conspicuous, short, recumbent, curled, fine, pale whitish; confluence of intervals 3 and 9 not swollen; strial grooves distinct, shallow, narrow; punctures minute, scarcely evident; scales granulate, contiguous and few imbricate, not pitted, round, arranged irregularly, black, brown, and white; fasciate-maculate; humeri with macula white; cuticle black. Metathoracic wing fully developed. Mesosternal process small, subtriangular between coxae. Metasternum 1.12X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, deeper and not narrowed apically; not continued on sternum 2; apical margin not declivous; 1.65X as long as 2; suture between 1 & 2 straight, uniformly deep. Sternum 2 flattened, apical 2/5 declivous; 1.42X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally flat; median impression moderately deep, narrow, subtriangular; with cluster of three to four erect, coarse apicolateral setae; 1.58X as long as 3 & 4 together, 1.12X as long as 2, 0.65X as long as 1. Legs moderately short. Femora clavate, black. Tibiae moderately stout, reddish brown; inner margin weakly bisinuate; outer margin slightly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, indistinct, minute, with moderately long bristles; outer surface with moderately long evident setae; uncus short, moderately stout, shorter than width of tibial apex. Tarsi short, broad, dark brown; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, broadly cordate, rather deeply emarginate; tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with several long bristles. Length, pronotum and elytron: 2.20 mm.

Female. Same as male except: rostrum 0.72X as long as pronotum. Antennae inserted at middle. Sternum 1 with median impression very shallow.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 94). Median lobe with dorsal surface poorly sclerotized, more or less membranous; with ventral surface fully sclerotized; more or less parallel-sided; extreme apex not elongate, subtruncate, very bluntly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin indistinct, shallowly emarginate; ventrobasal margin distinct, projecting acutely medially. Orifice more or less oval, short; proximal margin distinct, slightly sclerotized. Apodemes long, 1.88X as long as median lobe. Internal sac with orificial sclerites distinct, acute, forming pair of long lateral plates; with very large basal sclerite complex. Tegmen with cap-piece. Female (fig. 184). Sternum VIII with apical setae numerous, long, robust. Spermatheca with ramus prominent, strongly extending past insertion of spermathecal duct, set off from body by marked emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly,

slightly convex. Gonocoxae short, robust, tapering toward apex, slightly arcuate. Bursa copulatrix simple, without sclerites. Tergum VIII subtriangular; apical margin bluntly rounded. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - The described pattern of the dorsal vestiture with dark and light scales may be more or less contrasted. Size range 1.90-2.80 mm.

REMARKS AND COMPARATIVE NOTES - This species was erroneously reported by Schilsky (1907), and subsequently by Winkler (1932) and Klima (1934), as described by Kirsch. *Bagous brevipennis* is the unique Palearctic representative of the *B. crispus* group and is easily distinguished from the other Palearctic species by the numerous features which are characteristic of the group listed above.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Borshom (Caucasus).

NOTE ON TYPE SPECIMENS - This species was described from specimens from Caucasus, collected respectively at Borshom by Schneider and at Suram by Leder. We examined two syntypes: one male (MHNB) labelled "Kaukas., O. Schneider / male / *brevipennis* Kirsch" (lectotype here designated) and two females respectively labelled "Kaukas., O. Schneider / *Bagous brevipennis* K." (MNHB) and "Kaukas, Leder / Paratypus 1879, *Bagous brevipennis* Kirsch / Coll. Reitter" (HNHM).

SYNONYMIES - *Memptorrhynchus ripicola* was described from numerous specimens collected in Armenia (Echegnadsor, Alchatjan). At HNHM we examined two specimens of this species labelled as cotypes by Iablokoff-Khnzorian but collected at Vedi (2.V. ravvicinare 1953), which is a locality not reported in the original description. We did not observe differences between these specimens and the lectotype of *B. brevipennis.*

RANGE - Georgia, Armenia, Azerbajdzan, eastern Turkey.

MATERIAL EXAMINED - Apart from the type specimens (see above) 14 nontype specimens. Georgia: Georgia, Dranda, Kodori Stream, 20.V.1975, leg. L. Zombori (1, HNHM); Cauc. b.-oc., Cerkes. AO Kurdzinovo, r. silv. m 650, 6.VI.1989, Kadlec + Vorisek leg. (1, OVCK); Caucasus, Meskisches Geb., Leder (Reitter) (1, SMTD); Kaukasus, Mzhet, E. Koenig (1, MHNP). Armenia: Armenia, Leder (1, SMTD); Vedi / 2.V.1953 (2, HNHM). Azerbajdzan: Araxes, Reitter / Coll. J. Faust, Ankauf 1900 (1, SMTD); Caucasus, Araxesthal, Leder Reitter (1, HNHM; 1, SMTD); Baku, Kirsch (1, SMTD); Caucasus, Balassoglo / Coll. J. Faust, Ankauf 1900 (1, SMTD). Turkey: Turkei - 1989, leg. Schönmann et Schillhammer / Prov. Erzurum, Tortum-Narman, 9.VI, Kirecli Pass (3, NHMW); Tr. bor. or., Bayburt env., 1.VI.1994, leg. Skoupy (1, FTCF).

Bagous chevrolati group

This species group is characterized by: rostrum markedly sexually dimorphic (in male subquadrate in cross section, in female cylindrical in cross section and distinctly longer), often with dense fringe of scales (except for *B. costulatus* and *B. sabellai*), easily denuded, along ventral margin in median 1/3 (fig. 56), lacking sulci (except for *B. andalusiacus*) and carinae; frons not sulcate or foveate; funicular segment 7 as wide as 6, distinctly separated from club (except for *B. belloi* with 6-segmented funicle, fig. 50) and with pubescence sparse,

as dense as on other funicular segments (fig. 51); median sulcus of pronotum lacking (except for *B. longirostris*); elytra lacking declivital calli; vestiture of odd-numbered elytral intervals generally tessellate, with alternate rectangles of dark and pale scales; setae of odd-numbered elytral intervals surrounded usually by rosette of scales of same color; metasternum distinctly shorter than sternum 1; tibiae stout, with inner margin weakly bisinuate, lacking denticles and with several moderately short bristles, with outer margin straight to slightly arcuate and with short moderately distinct bristles, with apices slightly narrowed; tarsi short, with tarsomere 3 subcordate; median lobe generally with ventral membranous portion reaching apex; internal sac with basal sclerite complex mainly characterized by scarcely sclerotized plate, two narrow elongate median sclerites and two subclavate sclerites articulated between them (reduced in *B. belloi, B. costulatus* and *B. sabellai*; in the latter two some large spicules also present) (figs. 96-113); female sternum VIII with apical setae numerous, long, robust, with apodemes very broadly and arcuately divergent from base, broadly separated to near base, joined by transparent membrane, and indistinguishably fused with arms; bursa copulatrix with complex trilobed sclerotized structure (figs. 167-183).

Apart from a few easily distinguishable species, the group is composed of homogeneous species, often difficult to separate without the dissection of the male genitalia. In order to avoid repetitive description of characters which are common to all of the species of the group, in these descriptions we have deleted the characters distinctive to the group and the following characters: scape moderately short, moderately slender, subclavate; funicle with segment 1 stout, segment 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; club elongate-oval, segment 1 shorter than segments 2-4; confluence of elytral intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures minute; sternum 5 with clusters of three to four apicolateral setae; femora clavate; uncus moderately short, moderately slender, shorter than width of tibial apex; tarsi short, broad; tarsomeres 1-3 broadened toward apex; tarsomere 3 slightly wider at apex than 2, broadly cordate, rather deeply emarginate; tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with several long bristles; median lobe ventrally transversely rounded from base to apex, with dorsal surface behind orifice distinctly sclerotized, orifice not apparently elongate; tegmen with cap piece.

It appears that this group has a circum-mediterranean distribution with no representatives in other geographical regions.

The biology of the species of this primitive group is presently unknown. They are collected either in the desert or in woods and both in the plain and at high altitude, but usually by sifting soil and debris far from permanent aquatic pools. These habits, apparently different from those of most representative of the genus, seem to be confirmed by their external morphology (i.e. short and robust legs, scale vestiture, long elytral setae), which shows clear convergences with that of soil weevils like Orthochaetini.

3. **Bagous belloi** n. sp. (figs. 3, 50, 96)

DESCRIPTION - Male (holotype). Body medium-sized, elongate-oval, moderately robust. Rostrum moderately short, 0.86X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature weak and uneven; ventral curvature weak and uneven; not more distinctly depressed toward apex; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to

oval, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye strong; eyes flat, small, 0.43X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.74X as wide as head across eyes, weakly convex. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish brown; funicle moderately long, 0.83X as long as scape; segment 1 stout, segment 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 as broad as first club segment, fused with club (funicle of only six distinct segments), with pubescence distinctly denser than other segments (fig. 50); club 0.67X as long as funicle, reddish brown. Pronotum weakly transverse, 0.85X as long as broad; moderately rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides weakly rounded behind constriction, not impressed somewhat behind round area, median sulcus lacking; disc transversely weakly convex; intervals between punctures flattened (hidden by scales); apical and marginal setae few, moderately distinct, short, suberect, straight, coarse; scales subgranulate, not pitted, contiguous, round, dark brownish black; with 3 vittae; median vitta narrow, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised; lateral margin just in front of coxae (lateral view) rounded. Scutellum minute. Elytra gradually expanding behind humeri to declivity, 1.40X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals slightly more convex and elevated, with setae conspicuous, moderately long, suberect to subrecumbent, straight, coarse, pale whitish, each surrounded by rosette of pale scales; scales flattened, contiguous, not pitted, round, arranged irregularly, black, brown, and tan; tesselate; cuticle black. Metasternum 0.79X as long as sternum 1. Metathoracic wing rudimentary. Mesosternal process small, subtriangular between coxae. Sternum 1 with median impression continuous for entire length, deep, broad, not deeper and not narrowed apically, continued deeply on sternum 2; apical margin not declivous; 1.57X as long as 2; suture between 1 & 2 sinuate, broadly fused medially, deep laterally. Sternum 2 medially impressed, with impression broad, deep, apically declivous; 1.20X as long as 3 & 4 together. Sternum 5 with subapical median impression only, apicomedian and basal area flat; median impression shallow, broad, transverse; 0.94X as long as 3 & 4 together, 0.79X as long as 2, 0.42X as long as 1. Legs short. Femora black. Tibiae blackish brown. Tarsi reddish black. Length, pronotum and elytron: 2.30 mm.

Female (allotype). Same as male except: rostrum 0.94X as long as pronotum; ventral curvature weak and even, weakly expanded toward apex. Antennae inserted at middle. Sternum 1 with median impression shallow, in basal 1/2 only, broader apically, continued shallowly on sternum 2, convex in apical 1/2; apical margin declivous. Sternum 2 with impression narrow, shallow.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 96). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, very broadly subacute, in lateral view robust, evenly and

moderately curved, bluntly rounded; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice more or less oval, short; with proximal margin distinct, not sclerotized. Apodemes long, 1.33X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with small basal sclerite complex. Female. Genitalia unknown.

INTRASPECIFIC VARIATION - Apart from the sexual features, the specimens of the type series do not show noteworthy differences. Size range 2.20-2.30 mm.

ETYMOLOGICAL NOTE - This species is named in honor of our colleague and friend Cesare Bellò, who collected some specimens of the type series.

REMARKS AND COMPARATIVE NOTES - This species is characterized primarily by the antennal funicle clearly composed only of six articles (unique in the genus), the smooth texture of the pronotal scales, which are closely adpressed against each other, and the pronounced swelling beside the eye, which is shared only by *B. andalusiacus*. Also the median lobe of the aedeagus is distinct, since the sclerite complex at the base of the endophallus, although similar, is reduced compared with the other species of the group and the dorsal portion is largely sclerotized. These characters apparently relate *B. belloi* to *B. cyperorum*. However these species are totally different externally.

BIOLOGICAL NOTES - Bellò (pers. comm., 1994) collected this species at the foot of Taigeto Mount by sifting in a secondary bare patch with a woods of conifers, not far from a rivulet.

TYPE LOCALITY - Palo Panagia, loc. Poliane, Taigeto (Peloponnese, Greece).

NOTE ON TYPE SPECIMENS - Holotype (GOCA) and allotype (GOCA) both labelled: "Grecia, Taigeto, Palo Panagia, Loc. Poliane, m 1000, 16.VIII.1981, leg. Bellò / Collezione Cesare Bellò"; 2 male paratypes (GOCA, RCCM) labelled: "Peloponneso, Taigeto, Poliana, 1000-1600 m, 14.VII.81, M. & G. Osella".

The four specimens of the type series are in good condition. Unfortunately the allotype (the unique female examined), which already was dissected at the time of our study, lacks all the internal parts except for the pygidium.

RANGE - Southern Greece (Peloponnese).

MATERIAL EXAMINED - We studied only the four specimens of the type series (see above).

4. **Bagous epirotes** n. sp. (figs. 4, 97, 167)

DESCRIPTION - Male (holotype). Body medium-sized, elongate-oval, moderately slender. Rostrum moderately short, 0.83X as long as pronotum, black with apex reddish brown, broadly subcylindrical; dorsal curvature moderate and uneven; ventral curvature moderate and even; moderately depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, subgranulate, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes flat, small, 0.40X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons very broad, 0.82X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish black; funicle long, 0.93X as long as scape; club 0.62X as long as funicle, reddish black. Pronotum weakly transverse, 0.89X as long as broad;

moderately rounded from base; apical constriction moderate, in apical 1/4, dorsally shallower medially; sides weakly rounded behind constriction, not impressed somewhat behind round area; disc transversely moderately convex, weakly rugulose; intervals between punctures weakly granulose and nearly as large as punctures; apical and marginal setae few, scarcely evident, short, recumbent, curved, coarse; scales granulate and rugulose, not pitted, contiguous, round, brownish; with 3 vittae; median vitta narrow, complete, indefinite, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) acute. Scutellum minute. Elytra subparallel behind humeri, weakly, arcuately expanding in middle; 1.47X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals flattened; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, short, recumbent, curled, fine, pale whitish, each surrounded by scales of same color as other scales; scales subgranulate, contiguous, not pitted, round, arranged irregularly, brown and pale tan; tesselate; cuticle dark brown. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.76X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, deeper and not narrowed apically, continued shallowly on sternum 2; apical margin weakly declivous; 1.50X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, with impression broad, shallow; apically declivous; 1.57X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally transversely convex; median impression moderately deep, broad, transverse; 0.93X as long as 3 & 4 together, 0.64X as long as 2, 0.42X as long as 1. Legs short. Femora reddish brown. Tibiae reddish brown. Tarsi dark reddish. Length, pronotum and elytron: 2.10 mm.

Female (allotype). Same as male except: rostrum 1.08X as long as pronotum, subcylindrical; ventral curvature weak; expanded toward apex. Antennae inserted just behind middle. Sternum 1 with median impression very shallow, interrupted (basal and apical), flattened in middle 1/2, broader and not deeper apically.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 97). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, subtruncate, very bluntly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded, dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice more or less oval, short; proximal margin distinct, slightly sclerotized. Apodemes long, 1.90X as long as median lobe. Internal sac with orificial sclerites indistinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 167). Spermatheca with ramus distinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising subapically on body; nodulus more or less uniformly, strongly convex. Gonocoxae long, slender, tapering toward apex. Bursa copulatrix with trilobed sclerite with lateral lobes slightly produced. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The paratypes, males and females, do not show noteworthy differences from the holotype and allotype. Size range 2.10-2.40 mm.

ETYMOLOGICAL NOTE - The name of the species is a Latin masculine substantive which means "inhabiting Epirus" and refers to its type locality.

REMARKS AND COMPARATIVE NOTES - This species from Greece is closely related to *B. anatolicus* from North Central Turkey (see key to the species and remarks of *B. anatolicus*).

BIOLOGICAL NOTE - This species was collected by sifting soil at high altitude near the top of the mountain lacking waterpools (Osella & Meregalli, pers. comm., 1994).

TYPE LOCALITY - Timfi Mount, Drakolimni (Epirus, Greece).

NOTE ON TYPE SPECIMENS - Holotype (GOCA) labelled: "Epiro, 2000 m, Mte. Timfi, Drakolimni, 30.VI.82, leg. Osella"; allotype (GOCA) and 3 paratypes (females, GOCA, RCCM) labelled: ditto except "2.VII.82, 2200 m"; 3 paratypes (2 males and 1 females, GOCA, RCCM) labelled: "Grecia - Mti. Grammos (Joannina), 2200 m, Osella / 23.VIII.94, vaglio".

RANGE - Mountains of Epirus (Greece).

MATERIAL EXAMINED - We studied only the type series (see above).

5. **Bagous anatolicus** n. sp. (figs. 98, 168)

DESCRIPTION - Male (holotype). Body medium-sized, elongate-oval, moderately slender. Rostrum moderately short, 0.85X as long as pronotum, black with apex reddish brown, broadly subcylindrical; dorsal curvature moderate and uneven; ventral curvature moderate and even; moderately depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, subgranulate, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes flat, small, 0.38X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons very broad, 0.86X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish black; funicle long, 0.96X as long as scape; club 0.61X as long as funicle, reddish black. Pronotum weakly transverse, 0.85X as long as broad; moderately rounded from base; apical constriction dorsally distinct and uniform; sides weakly rounded behind constriction, not impressed somewhat behind round area; disc transversely moderately convex, weakly rugulose; intervals between punctures weakly granulose and smaller than punctures; apical and marginal setae few, scarcely evident, short, recumbent, curved, coarse; scales granulate and rugulose, not pitted, contiguous, round, brownish; with 3 vittae; median vitta narrow, complete, indefinite, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) acute. Scutellum minute. Elytra subparallel behind humeri, weakly, arcuately expanding in middle; 1.50X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals flattened; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, short,

recumbent, curled, fine, pale whitish, each surrounded by scales of same color as other scales; scales subgranulate, contiguous, not pitted, round, arranged irregularly, brown and pale tan; tesselate; cuticle dark brown. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.77X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, deeper and not narrowed apically, continued shallowly on sternum 2; apical margin weakly declivous; 1.54X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, with impression broad, shallow; apically declivous; 1.58X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally transversely convex; median impression moderately deep, broad, transverse; 0.96X as long as 3 & 4 together, 0.66X as long as 2, 0.40X as long as 1. Legs short. Femora reddish brown. Tibiae reddish brown. Tarsi dark reddish. Length, pronotum and elytron: 2.10 mm.

Female (allotype). Same as male except: rostrum 1.10X as long as pronotum, subcylindrical; ventral curvature weak; expanded toward apex. Antennae inserted just behind middle. Sternum 1 with median impression very shallow, interrupted (basal and apical), flattened in middle 1/2, broader and not deeper apically.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 98). Median lobe with dorsal surface excluding orificial area fully sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, subtruncate, very bluntly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded, dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice more or less oval, short; proximal margin distinct, slightly sclerotized. Apodemes long, 1.78X as long as median lobe. Internal sac with orificial sclerites distinctly sclerotized; with numerous fine spicules and moderately large basal sclerite complex. Female (fig. 168). Spermatheca with ramus distinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising subapically on body; nodulus more or less uniformly, strongly convex. Gonocoxae long, slender, tapering toward apex. Bursa copulatrix with trilobed sclerite with lateral lobes slightly produced. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The female paratype differs from the allotype in that the pronotum is slightly more transverse and the dorsal sculpture has slightly more pronounced granules. Size range 2.05-2.15 mm.

ETYMOLOGICAL NOTE - The name of the species is a Latin adjective which refers to the region where the species was collected.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. epirotes* from which it differs externally only by the pronotum with apical constriction dorsally uniform (not shallower medially) and with the punctures larger than the granules. It is easier to differentiate the two species by the examination of the median lobe.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Inkoy, Cankiri village (northern Turkey).

NOTE ON TYPE SPECIMENS - Holotype (GOCA) labelled: "Inkoy-Ilgaz Dag, vil. Cankiri, 1400 m / Turchia, VII / 1973, legg. M. e G. Osella, allotype (GOCA) labelled: "Turchia, Ilgaz-

Inkoy, 13.VII.1973, Osella, m 1100"; one female paratype (RCCM) labelled: "Turchie, Tekir, 1200 m, 4.V.1967, leg. Besuchet".

RANGE - North Central Turkey.

MATERIAL EXAMINED - We studied only the three type specimens (see above).

6. **Bagous osellai** n. sp. (figs. 5, 99, 169)

DESCRIPTION - Male (holotype). Body medium-sized, elongate-subcylindrical, moderately slender. Rostrum moderately short, 0.85X as long as pronotum, black with apex reddish brown, broadly subcylindrical; dorsal curvature weak and uneven; ventral curvature weak and uneven; not more distinctly depressed toward apex; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, whitish gray, Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye very weak; eyes flat, small, 0.39X as long as head across ocular lobes; scales granulate, contiguous, not pitted, round, whitish gray; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.75X as wide as head across eyes, weakly convex. Antennae inserted just in front of middle; scape and funicle reddish brown; funicle moderately long, 0.82X as long as scape; club 0.57X as long as funicle, reddish brown. Pronotum weakly transverse, 0.86X as long as broad; moderately expanding from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform, sides moderately rounded behind constriction, not impressed somewhat behind round area; disc transversely weakly convex, rugose; intervals between punctures granulose; apical and marginal setae few, moderately distinct, short, suberect to subrecumbent, curved to straight, coarse; scales granulate, not pitted, contiguous, indefinitely shaped, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale grayish; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) acute. Scutellum minute. Elytra subparallel behind humeri to declivity; 1.45X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals flattened; odd-numbered intervals more convex and elevated, with setae conspicuous, moderately long, suberect, straight, coarse, pale whitish, each surrounded by rosette of pale scales; scales nongranulate, contiguous, not pitted, round, arranged irregularly, black, brown, and white; tesselate; cuticle black. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.74X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, deeper and not narrowed apically, continued shallowly on sternum 2; apical margin weakly declivous; 1.30X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, with impression broad, moderately deep; apically weakly declivous; 1.41X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally flat; median impression moderately deep, broad, transverse; 0.76X as long as 3 & 4 together, 0.54X as long as 2, 0.34X as long as 1. Legs short. Femora black. Tibiae reddish brown. Tarsi reddish brown. Length, pronotum and elytron: 2.25 mm.

Female (allotype). Same as male except: rostrum 1.15X as long as pronotum, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even, weakly expanded toward apex. Antennae inserted just behind middle. Sternum 1 with median impression very shallow, slightly narrowed apically. Sternum 2 with impression narrow, shallow. Sternum 5 with apicomedian area transversely convex.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 99). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface membranous; more or less parallel-sided, extreme apex not elongate, weakly emarginate, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); proximal margin of pseudo-orifice distinct, deeply concave; pseudo-orifice short, slightly enlarging apparent orifice. Orifice with proximal margin distinct, not sclerotized. Apodemes long, 1.66X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 169). Spermatheca with ramus distinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising subapically on body; nodulus more or less uniformly, strongly convex. Gonocoxae long, slender, slightly arcuate. Bursa copulatrix with trilobed sclerite with lateral lobes slightly prominent. Tergum VIII with apical margin bluntly rounded, very slightly reflexed but not forming distinct lip; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The female paratype (length 2.40 mm) differs from the allotype only by the formers slightly shorter elytra.

ETYMOLOGICAL NOTE - This species is named in honor of our friend and colleague, Dr. Giuseppe Osella, who collected this species as well as many other interesting specimens of *Bagous* which were very useful to our study.

REMARKS AND COMPARATIVE NOTES - Apart from the differences in the shape of the median lobe, this species is distinguished from *B. anatolicus*, the only other species presently known from northern central Anatolia, and *B. freti* and *B. cosiensis* by the pronotum being widest at the apical third with the apical constriction more marked and more convex on the dorsum, where the sculpture is more striate-rugose, and the intervals between the punctures being distinctly more granulate (see also key to the species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Megitozu (Amasya, Turkey).

NOTE ON TYPE SPECIMENS - Holotype (GOCA), allotype (GOCA) and one paratype female (RCCM) all labelled: "Turchia, Megitozu (Amasya), 4.VI.69, leg. Osella".

RANGE - This species presently is known only from the type locality, Megitozu in North Central Turkey.

MATERIAL EXAMINED - We examined only the three specimens of the type series (see above).

7. *Bagous gracilentus* Desbrochers (figs. 6, 100, 170)

Bagous gracilentus Desbrochers, 1896 (15.VIII.96): 99. Hustache, 1927: 128, 130. Hoffmann, 1936: 62, 63. González, 1971: 11, 14.

Bagous elongatus Pic, 1896 (15.XI.96): 114; 1928: 19. Hoffmann, 1936: 63. González, 1971: 14.

REDESCRIPTION - Male. Body medium-sized, elongate-subcylindrical, moderately slender. Rostrum moderately long, 0.94X as long as pronotum, black with apex reddish brown, broadly subcylindrical; dorsal curvature moderate and even; ventral curvature weak and uneven; weakly depressed in apical 1/3; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes flat, small, 0.38X as long as head acoss ocular lobes; scales granulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.77X as wide as head across eyes, moderately convex. Antennae inserted at apical 2/5; scape and funicle reddish brown; funicle moderately long, 0.83X as long as scape; club 0.65X as long as funicle, reddish brown. Pronotum weakly transverse, 0.85X as long as broad; moderately rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely weakly convex, rugose; intervals between punctures distinctly granulose; apical and marginal setae few, moderately distinct, short, suberect to subrecumbent, curved to straight, coarse; scales granulate, not pitted, contiguous, indefinitely shaped, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale grayish; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately deep, moderately broad, strongly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) acute. Scutellum minute. Elytra subparallel behind humeri to declivity, 1.54X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; with humeri moderately developed, obliquely angulate; even-numbered intervals flattened; odd-numbered intervals more convex and elevated, with setae conspicuous, moderately long, suberect, straight, coarse, pale whitish, each surrounded by rosette of pale scales; scales subgranulate, contiguous, not pitted, round, arranged irregularly, black, brown, and white; tesselate; cuticle black. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.74X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, deeper and not narrowed apically, continued deeply on sternum 2; apical margin weakly declivous; 1.30X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, with impression broad, moderately deep; apically declivous; 1.64X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally transversely convex; median impression moderately deep, broad, transverse; 0.82X as long as 3 & 4 together, 0.50X as long as 2, 0.39X as long as 1. Legs short. Femora black. Tibiae blackish brown. Tarsi reddish. Length, pronotum and elytron: 2.10 mm.

Female. Same as male except: rostrum 1.22X as long as pronotum, subcylindrical; dorsal curvature uneven; ventral curvature even; not depressed toward apex, subparallel. Antennae inserted at middle. Sternum 1 with median impression shallow, moderately narrow, interrupted (basal and apical), flattened in middle 1/2; not deeper apically, not continued on sternum 2. Sternum 2 convex.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 100). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, subtruncate, very bluntly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice transverse, short; proximal margin distinct, slightly sclerotized. Apodemes long, 1.57X as long as median lobe. Internal sac with orificial sclerites indistinct, acute, pale, poorly sclerotized; with very large basal sclerite complex. Female (fig. 170). Spermatheca with ramus distinct, not extending past insertion of spermathecal duct, set off from body by marked emargination; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, tapering toward base. Bursa copulatrix with trilobed sclerite with median lobe markedly prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The pale scales of the dorsal vestiture vary from grey to pale brown. Sometimes the dark scales, usually more numerous only on intervals 3 and 7, also cover intervals 1 and 2 more or less completely. The sides of the elytra may be parallel to slightly curved. Size range 1.90-2.55 mm.

REMARKS AND COMPARATIVE NOTES - Due to the elongate elytra and subquadrate pronotum, this species should be confused only with *B. freti* and *B. marocanus* (see key to the species).

BIOLOGICAL NOTES - No data are available.

TYPE LOCALITY - Misserghin (Oran, Algeria).

NOTE ON TYPE SPECIMENS - In the original description, Desbrochers wrote about the type locality "Misserghin prés Oran, de mes chasses du 1889". In his collection (MHNP) we examined one male syntype labelled "Oran, Desbrochers, 1889 / Ex Musaeo Desbrochers" dissected by González but lacking the aedeagus and in the Tournier collection (MHNP) another male syntype labelled "Oran / n. sp./ 6 / type / *gracilentus* / Type" (lectotype here designated).

SYNONYMIES - *Bagous elongatus* also was described based on specimens from Oran. In the Pic collection (MHNP) we examined one female syntype labelled "Oran / *africanus* / n. sp. XX / type / *B. elongatus* Pic / Type" (lectotype here designated). Hustache (1927) considered this species as synonymous with *B. gracilentus* only with a better original description, since both were described in the same year. We can confirm this opinion and also the priority of the name *gracilentus* having traced it back to the date of issue not reported in the issues of Frelon with the help of Perrin who consulted the National Archives of France (Paris).

RANGE - Algeria, Spain (latter citation to be confirmed since it is based on only one specimen without careful indication of the place of collection).

MATERIAL EXAMINED - Apart from the type specimens (see above) 33 nontype specimens. Spain: Espagne, Bonnaire, *pertusicollis* (1, MHNP). Algeria: Oran, Algérie, Bonnaire (8, MHNP); Algérie, Oran, P. Mathieu (5, MHNP); Oran, de Vauloger (8, MHNP); Algérie, Saint-André de Mers-el-Kébir, 18.XII.1959 (11, MHNP).

8. *Bagous rudicollis* Desbrochers (figs. 101, 171)

Bagous rudicollis Desbrochers, 1896: 100. Escalera, 1914: 461.

REDESCRIPTION - Male. Body medium-sized, elongate-oval, moderately robust. Rostrum moderately short, 0.85X as long as pronotum, black with apex reddish brown, broadly subcylindrical; dorsal curvature moderate and uneven; ventral curvature nearly straight; very slightly depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes flat, small, 0.40X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.80X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish brown; funicle moderately long, 0.87X as long as scape; club 0.61X as long as funicle, reddish brown. Pronotum weakly transverse, 0.96X as long as broad, unevenly subparallel-sided; strongly constricted at base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; disc transversely flattened, rugose; intervals between punctures granulose (granules hidden by scales); apical and marginal setae few, moderately distinct, short, suberect, curved to straight, coarse; scales subgranulate, broadly impressed, contiguous, oval to triangular, partly vertically arranged, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale grayish; lateral vitta moderately broad, pale grayish brown; ocular lobes weakly developed, reddish black. Prosternal sulcus moderately deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri, weakly, arcuately expanding in middle; 1.33X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals flattened; odd-numbered intervals slightly more convex and elevated, with setae conspicuous, long, erect to suberect, straight, fine, pale whitish, each surrounded by rosette of pale scales; scales granulate, contiguous, not pitted, round, arranged irregularly, black, brown, and white; tesselate; cuticle black. Metathoracic wing rudimentary. Mesosternal process small, subtriangular between coxae. Metasternum 0.71X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin declivous, 1.15X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 flattened, apically weakly declivous, 1.44X as long as 3 & 4 together. Sternum 5 with subapical median impression only, moderately deep, broad, transverse; apicomedian area flat; 0.83X as long as 3 & 4 together, 0.58X as long as 2, 0.44X as long as 1. Legs short. Femora reddish black. Tibiae dark reddish. Tarsi dark reddish. Length, pronotum and elytron: 2.20 mm.

Female. Same as male except: rostrum 1.20X as long as pronotum, subcylindrical; ventral curvature weak and even; not depressed toward apex, weakly expanded toward apex. Antennae inserted just behind middle. Sternum 1 with median impression shallow, broad, basal only, not narrowed apically, not continued on sternum 2; convex in apical 2/3. Sternum 2 basally convex; apical 2/5 declivous.

GENITALIA AND ASSOCIATED STRUCTURES. Male (fig. 101). Median lobe with dorsal surface

poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, broadly and uniformly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice transverse, short; proximal margin distinct, not sclerotized. Apodemes long, 2.00X as long as median lobe. Internal sac with orificial sclerites distinct, acute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 171). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, tapering toward apex, slightly arcuate. Bursa copulatrix with trilobed sclerite with lateral lobes somewhat produced. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The pronotum varies slightly in width and in the more or less pronounced diverging sides. Size range 2.10-2.50 mm.

REMARKS AND COMPARATIVE NOTES - This species is very closely related to *B. corsicanus*, unfortunately presently known only from females. The only clear difference between the two species seems to be the shape of the gonocoxal styli. *Bagous rudicollis* shares the general habitus with *B. guttatus* (see remarks for this species) and *B. lyauteyi* (see key to the species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Tanger (Morocco).

NOTE ON TYPE SPECIMENS - This species was described from one male and one female, but remained unknown to subsequent authors. In the Desbrochers collection (MHNP), as well as in all the collections examined, there are no specimens labelled with this name. However, in the Desbrochers collection we found a small series of specimens collected at Tanger, corresponding perfectly to the original description. Since this species belongs to a complex and extremely similar group of species, in the interests of stability of nomenclature as reported in Art. 75b (i) (ii) of the ICZN we designated one male of these specimens labelled " 12.93, Tanger / Maroc, ex Musaeo H. Vaucher 1908" (MHNP) as the neotype of *B. rudicollis* Desbrochers. This specimen corresponds to *B. rudicollis* Desbrochers sensu Escalera (1914), whereas the specimens named by Hustache (1927) as *B. rudicollis* are *B. revelieri*. We did not report the description of the neotype in detail, because in this specimen (corresponding well, however, to the published description) the vestiture is hidden by a dense secreted coating.

RANGE - Morocco, southern Spain.

MATERIAL EXAMINED - Apart from the neotype (see above) 15 nontype specimens. Morocco: Tanger, M. Escalera leg. (5, MCNM); Tanger / Maroc, ex Musaeo H. Vaucher 1908 (2, MHNP); ditto, 12.93 (2, MHNP); ditto, 10.96 (1, MHNP); ditto, 1.97 (2, MHNP); Tanger, Rolph (2, DEIE). Spain: España, Tarifa (Ca), maart 1991, P. Poot (1, PPCM).

9. *Bagous corsicanus* Hoffmann (figs. 7, 172)

Bagous corsicanus Hoffmann, 1936: 61; 1954: 722, 723. González, 1967: 96; 1971: 11, 13.

REDESCRIPTION - Female (holotype). Same as *B. rudicollis* female except: elytra subparallel behind humeri, weakly, arcuately expanding in middle. Genitalia (fig. 172). Gonocoxae very slender, with large styli.

INTRASPECIFIC VARIATION - The specimen from Sardinia is distinctly smaller (length 1.95 mm) than the holotype and has narrower elytra.

REMARKS AND COMPARATIVE NOTES - This species was previously known only from the female holotype (Hoffmann, 1936, 1954; González, 1967, 1971). In the Dodero collection (MGCD) we found another female from Sardinia, but unfortunately no males. *Bagous corsicanus* appears very closely related to *B. rudicollis* from which it slightly differs apparently only by the shape of elytra and gonocoxae. Therefore, it is necessary to find males of this species to verify its validity.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Porto Vecchio (Corse).

NOTE ON TYPE SPECIMENS - This species was described based on a unique specimen, which we examined in the Hoffmann collection (MHNP), labelled "Porto Vecchio, Corse, IV.33, leg. A. Bruera".

RANGE - Corse, Sardinia.

MATERIAL EXAMINED - Apart from the holotype (see above) 1 nontype specimen (female). Italy: Sardinia, Oristano, U. Lostia (1, MGCD).

10. *Bagous lyauteyi* Hoffmann (figs. 8, 102, 173)

Bagous lyauteyi Hoffmann, 1952: 139.

REDESCRIPTION - Male. Body medium-sized, elongate-oval, moderately robust. Rostrum moderately long, 0.95X as long as pronotum, black with apex reddish brown, broadly subcylindrical; dorsal curvature weak and uneven; ventral curvature weak and uneven; very slightly depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown, Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.36X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.80X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish brown; funicle long, 0.90X as long as scape; club 0.59X as long as funicle, reddish brown. Pronotum weakly transverse, 0.89X as long as broad; moderately rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; disc transversely flattened, coarsely rugose; intervals between punctures granulose (granules hidden by scales); apical and marginal setae few, moderately distinct, short, erect to subrecumbent, curved to straight, coarse; scales granulate, broadly impressed, contiguous, oval to triangular, partly arranged vertically, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale grayish; lateral vitta moderately broad, pale grayish; ocular lobes moderately developed, reddish black. Prosternal sulcus deep, moderately broad, strongly narrowed at apical constriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra subparallel behind humeri, weakly, arcuately expanding in middle; 1.40X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-

numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, long. erect, straight, fine, pale whitish, each surrounded by rosette of pale scales; scales granulate, contiguous, not pitted, round, arranged irregularly, brown, and grayish white; tesselate; cuticle black. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.66X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, deeper and not narrowed apically, continued shallowly on sternum 2; apical margin weakly declivous; 1.39X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, impression broad, shallow; apically weakly declivous; 1.30X as long as 3 & 4 together. Sternum 5 flat, basally transversely convex; 0.90X as long as 3 & 4 together, 0.69X as long as 2, 0.39X as long as 1. Legs short. Femora black. Tibiae reddish black. Tarsi dark reddish. Length, pronotum and elytron: 2.25 mm.

Female. Same as male except: rostrum 1.16X as long as pronotum, subcylindrical; dorsal curvature moderate and uneven; ventral curvature even; not depressed and weakly expanded toward apex. Antennae inserted at middle. Sternum 1 with median impression interrupted (basal and apical), broader apically, not continued on sternum 2; convex in middle 1/2. Sternum 2 convex; apical 2/5 declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 102). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; widest at orifice; extreme apex not elongate, broadly and uniformly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice more or less oval, short; proximal margin distinct, not sclerotized. Apodemes long, 1.07X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 173). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, tapering toward base. Bursa copulatrix with trilobed sclerite with lateral lobes somewhat prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The sides of pronotum and elytra are more or less rounded. Size range 1.80-2.50 mm.

REMARKS AND COMPARATIVE NOTES - This species shares the following: the sculpture of the pronotum formed by deep punctures with the intervals cristate between the punctures, and the elongate elytra, only with *B. franzi*. However, in *B. lyauteyi* the punctures of the pronotum are distinctly larger and the elytra less elongate, especially in the apical third, and more convex at the posterior declivity. Moreover, the apical constriction of the pronotum is only moderate.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Fort Lyautey (Morocco).

NOTE ON TYPE SPECIMENS - This species was described based only on the holotype (female), which we examined in the Hoffmann collection (MHNP), labelled "Fort Lyautey, May 1951, Kocher / Type".

RANGE - Morocco.

MATERIAL EXAMINED - Apart from the type specimen (see above) 11 nontype specimens. Morocco: Fès, St. 54, 1.X.38, Otin (1, MHNP); Oued Fouarat, Maroc occid., A. Thery (3, MHNP); Kenitra, O. Fouarat / Alluaud (1, MHNP); O. Foarat (sic!) / Collection Bovie thru Buchanan (2, USNM); Merdja Bokka, XII.60, Maroc (Antoine) (3, MHNP); Maroc (Kocher), Merdjas du Gharb, II.51 (1, MHNP).

11. *Bagous franzi* González (figs. 9, 103, 174)

Bagous franzi González, 1967: 95; 1971: 11, 13.

REDESCRIPTION - Male. Body medium-sized, elongate-oval, moderately robust. Rostrum moderately short, 0.87X as long as pronotum, reddish brown, broadly subcylindrical; dorsal curvature moderate and uneven; ventral curvature weak and uneven; very slightly depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, coarsely pitted, round, whitish gray. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye weak; eyes flat, small, 0.35X as long as head across ocular lobes; scales granulate, contiguous, pitted, round, whitish gray; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.82X as wide as head across eyes, weakly convex. Antennae inserted at apical 2/5; scape and funicle reddish brown; funicle moderately long, 0.83X as long as scape; club 0.64X as long as funicle, reddish brown. Pronotum transverse, 0.78X as long as broad; sides unevenly rounded; strongly expanding from base; apical constriction sudden and strong, in apical 1/4, dorsally distinct and uniform; sides strongly rounded behind constriction, not impressed somewhat behind round area; disc transversely weakly convex, rugose; intervals between punctures granulose (granules hidden by scales); apical and marginal setae few, moderately distinct, short, erect to suberect, straight, coarse; scales granulate, broadly impressed, contiguous, oval to triangular, partly arranged vertically, dark gray-brown; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale grayish; lateral vitta moderately broad, pale grayish; ocular lobes weakly developed, reddish black. Prosternal sulcus deep, moderately broad, strongly narrowed at apical constriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra subparallel behind humeri to declivity; 1.44X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); subequal in width to pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, strongly rounded, nearly rectangular; even-numbered intervals flattened; odd-numbered intervals more convex and elevated, with setae conspicuous, long, erect to suberect, straight, coarse, pale whitish, each surrounded by rosette of pale scales; scales granulate, contiguous, not pitted, round, arranged irregularly, brown, and grayish white; tesselate; cuticle black. Metasternum 0.86X as long as sternum 1. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Sternum 1 with median impression shallow, broad, continuous for entire length, not deeper and not narrowed apically, continued deeply on sternum 2; apical margin weakly declivous; 1.43X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, impression narrow, moderately deep, apically weakly declivous; 1.33X as long as 3 & 4 together. Sternum 5 with subapical median impression only, apicomedian area transversely convex, basal area flat, median impression moderately deep, broad, transverse; 0.78X as long as 3 &

4 together, 0.58X as long as 2, 0.37X as long as 1. Legs short. Femora reddish black. Tibiae dark reddish. Tarsi dark reddish. Length, pronotum and elytron: 2.15 mm.

Female. Same as male except: rostrum 1.31X as long as pronotum, subcylindrical; not depressed toward apex; weakly expanded toward apex. Antennae inserted just behind middle. Sternum 1 with median impression basal only, not continued on sternum 2; convex in apical 3/4; apical margin declivous. Sternum 2 convex; apical 2/5 declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 103). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, weakly emarginate, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin distinct, deeply emarginate; ventrobasal margin not distinguishable. Orifice more or less oval, short; proximal margin distinct, not sclerotized. Apodemes long, 1.41X as long as median lobe. Internal sac with orificial sclerites distinct, rounded, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 174). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less flat. Gonocoxae long, slender, strongly arcuate. Bursa copulatrix with trilobed sclerite with median lobe markedly prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - Apart from the sexual features, the specimens examined did not show noteworthy differences. Size range 2.10-2.40 mm.

REMARKS AND COMPARATIVE NOTES - Due to the characteristic vestiture of the pronotum composed of subacuminate scales, this fine species may be confused only with *B. rudicollis, B. corsicanus* and *B. lyauteyi* (see key to the species).

BIOLOGICAL NOTES - Franz (pers. comm., 1989) collected this species in large numbers under stones in a dry habitat.

TYPE LOCALITY - Carmona, Almaja (Sevilla, Spain).

NOTE ON TYPE SPECIMENS - This species was described based on one male and one female, part of a large series of specimens contemporaneously collected by Franz. We examined the holotype in the HFCM and several topotypes on which our description is based.

RANGE - Only known from the type-locality (Andalusia, southern Spain).

MATERIAL EXAMINED - Apart from the holotype (see above) 8 topotypic nontype specimens. Spain: Carmona Almaja, Sevilla / Hof Alamaja, Tierra negra, 21.II.1951, leg. H. Franz (4, HFCM; 2, HNHM; 2, NHMW).

12. **Bagous freti** n. sp. (figs. 104, 175)

DESCRIPTION - Male (holotype). Body medium-sized, elongate-subcylindrical, moderately slender. Rostrum short, 0.76X as long as pronotum, reddish brown, broadly subcylindrical; dorsal curvature moderate and even; ventral curvature nearly straight; not more distinctly depressed toward apex; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye very weak; eyes weakly convex, small, 0.36X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct,

suberect, curved, coarse, linearly arranged. Frons very broad, 0.80X as wide as head across eyes, moderately convex. Antennae inserted at apical 2/5; scape and funicle reddish brown; funicle moderately long, 0.87X as long as scape; club 0.58X as long as funicle, reddish brown. Pronotum transverse, 0.83X as long as broad; moderately rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, slightly impressed behind round area; disc transversely moderately convex, rugulose; intervals between punctures granulose; apical and marginal setae few, scarcely evident, short, suberect to subrecumbent, curved, coarse; scales granulate, not pitted, contiguous, round, brownish; with 3 vittae; median vitta narrow, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) acute. Scutellum minute. Elytra subparallel behind humeri to declivity; 1.49X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, moderately long, suberect, curled, coarse, pale whitish, each surrounded by rosette of pale scales; scales subgranulate, contiguous, not pitted, round, arranged irregularly, brown and pale tan; tesselate; cuticle blackish brown. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.82X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, deeper and not narrowed apically, continued shallowly on sternum 2; apical margin not declivous; 1.32X as long as 2; suture between 1 & 2 straight, uniformly deep. Sternum 2 medially impressed, with impression broad, shallow; apically weakly declivous; 1.40X as long as 3 & 4 together. Sternum 5 with subapical median impression only; basally transversely convex; median impression shallow, broad, transverse; 0.84X as long as 3 & 4 together, 0.65X as long as 2, 0.43X as long as 1. Legs short. Femora reddish brown. Tibiae reddish brown. Tarsi reddish brown. Length, pronotum and elytron: 2.20 mm.

Female (allotype). Same as male except: rostrum 1.16X as long as pronotum, subcylindrical; ventral curvature weak and even; weakly expanded toward apex. Antennae inserted at middle. Sternum 1 with median impression moderately shallow, interrupted (basal and apical), flattened in middle 1/3, not continued on sternum 2; apical margin declivous. Sternum 2 basally convex; apical 2/5 declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 104). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, weakly emarginate, in lateral view robust, strongly curved, narrowly rounded; dorsobasal margin indistinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice transverse, short; with proximal margin distinct, slightly sclerotized. Apodemes long, 1.76X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 175). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, strongly arcuate. Bursa copulatrix with trilobed sclerite with median lobe

markedly prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - We examined only the male and the female on which our description is based.

ETYMOLOGICAL NOTE - The name of the species is a Latin genitive of the masculine substantive "fretus", which means "straits" and refers to the type locality on the Straits of Dardanelles.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. cosiensis* and *B. osellai*, from which it differs by the sculpture of the pronotum (rugulose vs. rugose) and the sclerite complex nearer to the median lobe (see key to the species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Port Baklar (Turkey).

NOTE ON TYPE SPECIMENS - Holotype (BMNH) labelled: "Port Baklar / *Bagous* sp.? ap. Bed. / *costatus* (sic!) Perr."; allotype (MHNP) labelled: "Port Baklar / Dardanelles, J.J.Walker".

RANGE - Known only from the type locality, Port Baklar (Turkey).

MATERIAL EXAMINED - We examined only the two type specimens (see above).

13. *Bagous libanicus* Schilsky

Bagous libanicus Schilsky, 1911: 99.

ORIGINAL DESCRIPTION (translated from German) - Female (holotype). Similar to *B. kirschi* (syn. of *B. costulatus*), but elytra nearly parallel-sided, basally flat, only apically convex. Rostrum distinctly longer. Body elongate, nearly parallel, blackish brown, covered with dense scales; antennal funicle dark brown; antennal scape and club and tarsi blackish. Head convex, covered with dense scales. Rostrum of similar width at base, rounded, regularly curved, as long as head and pronotum together, squamulate to apex.

Antennae inserted at middle of rostrum, funicle with segment 1 robust, segment 2 distinctly longer than wide, subconical, other segments wider than long, rounded, strongly transverse. Pronotum nearly as wide as elytra, apically very strongly constricted, basally distinctly and abruptly constricted, parallel-sided at middle, with straight base, regularly convex, densely and strongly granulose, apically bisinuate; ocular lobe weak. Elytra parallel-sided in basal 1/2, apically gradually narrowed, 1.75X as long as broad, basally distinctly concave, behind base with transverse impression not reaching humeri which are scarcely prominent, odd-numbered intervals more convex than even-numbered intervals, with sparse and short setae, with incospicuous maculae of white scales. Legs short, tarsomere 1 and 2 of same width, tarsomere 3 broader and slightly longer.

REMARKS AND COMPARATIVE NOTES - This is the only western Palearctic species which we do not know. Moreover we examined no specimen of the *B. chevrolati* group collected in Lebanon as well as in the whole Middle East. According to the original description, this species is characterized by distinctly elongate, parallel-sided elytra, which are basally transversely impressed, and by granulose pronotum with sides parallel at middle and constricted both basally and apically. Therefore we believe that *B. libanicus* might be related to *B. gracilentus* and *B. freti*.

NOTES ON TYPE SPECIMENS - This species was described from only a female specimen

collected in Lebanon without further indications. We did not find this specimen in the Schilsky collection (MNHB), where it should be preserved according to the original description.

14. **Bagous cosiensis** n. sp. (figs. 105, 176)

DESCRIPTION - Male (holotype). Body medium-sized, elongate-subcylindrical, moderately slender. Rostrum short, 0.78X as long as pronotum, reddish brown, broadly subcylindrical; dorsal curvature moderate and even; ventral curvature nearly straight; not more distinctly depressed toward apex; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye very weak; eyes weakly convex, small, 0.35X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.83X as wide as head across eyes, moderately convex. Antennae inserted at apical 2/5; scape and funicle reddish brown; funicle moderately long, 0.82X as long as scape; club 0.55X as long as funicle, reddish brown. Pronotum transverse, 0.84X as long as broad; moderately rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, slightly impressed behind round area; disc transversely moderately convex, rugose; intervals between punctures granulose; apical and marginal setae few, scarcely evident, short, suberect to subrecumbent, curved, coarse; scales granulate, not pitted, contiguous, round, brownish; with 3 vittae; median vitta narrow, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) acute. Scutellum minute. Elytra subparallel behind humeri to declivity; 1.52X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, moderately long, suberect, curled, coarse, pale whitish, each surrounded by rosette of pale scales; scales subgranulate, contiguous, not pitted, round, arranged irregularly, brown and pale tan; tesselate; cuticle blackish brown. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.83X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, deeper and not narrowed apically, continued shallowly on sternum 2; apical margin not declivous; 1.34X as long as 2; suture between 1 & 2 straight, uniformly deep. Sternum 2 medially impressed, with impression broad, shallow; apically weakly declivous; 1.44X as long as 3 & 4 together. Sternum 5 with subapical median impression only; basally transversely convex; median impression shallow, broad, transverse; 0.85X as long as 3 & 4 together, 0.63X as long as 2, 0.44X as long as 1. Legs short. Femora reddish brown. Tibiae reddish brown. Tarsi reddish brown. Length, pronotum and elytron: 2.30 mm.

Female (allotype). Same as male except: rostrum 1.19X as long as pronotum, subcylindrical; ventral curvature weak and even; weakly expanded toward apex. Antennae inserted at middle. Sternum 1 with median impression moderately shallow, interrupted (basal and api-

cal), flattened in middle 1/3, not continued on sternum 2; apical margin declivous. Sternum 2 basally convex; apical 2/5 declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 105). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, weakly emarginate, in lateral view robust, strongly curved, narrowly rounded; dorsobasal margin indistinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice transverse, short; with proximal margin distinct, slightly sclerotized. Apodemes long, 1.76X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 176). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, strongly arcuate. Bursa copulatrix with trilobed sclerite with median lobe somewhat prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - In the females examined, the pronotum and elytra are slightly broader on average than in the males (respectively pronotum 0.72-0.80X vs. 0.83-0.89X and elytra 1.40-1.44X vs. 1.51-1.53X as long as broad), and the elytra expand gradually from the humeri to the apical declivity. Size range mm 2.15-2.60.

ETYMOLOGICAL NOTE - The name of the species is a Latin adjective which refers to an inhabitant of the type locality.

REMARKS AND COMPARATIVE NOTES - This species appears very closely related to *B. osellai* and *B. freti* from which it differs clearly by the shape of the median lobe (mainly by the features of the basal sclerite complex). With regard to the external morphology, see key to the species.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Ammos (Kos isle, Greece).

NOTE ON TYPE SPECIMENS - Holotype (MMCT), allotype (MMCT) and 1 male and 3 female paratypes (CWOB, MMCT, RCCM) all labelled: "Gr. Greece: Kos, Ammos, 27.VIII.-1.IX.1981, leg T. Palm"; 1 female paratype (MMCT): "Gr.: Kos, C. Psalocha, leg H. Waldén, 24.V.1979".

RANGE - Kos isle (southern Sporads, Greece).

MATERIAL EXAMINED - We examined only the type specimens (see above).

15. *Bagous andalusiacus* González (figs. 10, 106, 177)

Bagous andalusiacus González, 1971: 8, 9.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.77X as long as pronotum, black, broadly subcylindrical; dorsal curvature weak and uneven; ventral curvature nearly straight; not more distinctly depressed toward apex; basolateral sulcus shallow, broad, long, coarsely punctate; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye strong; eyes flat, small, 0.36X as long as head across ocular lobes; scales coarsely granulate, contiguous, not pitted, round, browni-

sh; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.70X as wide as head across eyes, somewhat flattened. Antennae inserted just in front of middle; scape and funicle dark reddish; funicle long, 0.93X as long as scape; club 0.64X as long as funicle, reddish brown. Pronotum weakly transverse, 0.90X as long as broad; bisinuately rounded, moderately expanding from base; apical constriction strong, in apical 1/5, dorsally distinct and uniform; sides strongly rounded behind constriction, slightly impressed behind round area; disc transversely weakly convex, rugose; intervals between punctures distinctly granulose; apical and marginal setae few, moderately distinct, short, erect to subrecumbent, curved to straight, coarse; scales coarsely granulate, not pitted, subcontiguous, indefinitely shaped, brownish; with 3 vittae; median vitta narrow, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus deep, moderately broad, strongly narrowed at apical constriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra gradually expanding behind humeri to declivity; 1.36X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate, non acute, somewhat produced; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, with setae conspicuous, moderately long, suberect, straight, fine, pale whitish, each surrounded by rosette of pale scales; scales granulate, contiguous, not pitted, round, arranged irregularly, brown and pale tan; tesselate; cuticle black. Metasternum 0.63X as long as sternum 1. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Sternum 1 with median impression shallow, broad, continuous for entire length, deeper and not narrowed apically, continued shallowly on sternum 2; apical margin declivous, 1.36X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, impression broad, shallow; apically declivous, 1.50X as long as 3 & 4 together. Sternum 5 with subapical median impression only; basally transversely convex; median impression shallow, narrow, transverse; 0.89X as long as 3 & 4 together, 0.59X as long as 2, 0.43X as long as 1. Legs short. Femora black. Tibiae blackish brown. Tarsi dark reddish. Length, pronotum and elytron: 2.40 mm.

Female. Same as male except: rostrum 0.98X as long as pronotum, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even. Antennae inserted at middle. Sternum 1 with median impression not continued on sternum 2.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 106). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, broadly and uniformly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin indistinct, truncate; ventrobasal margin not distinguishable; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); proximal margin of pseudo-orifice distinct, deeply concave; pseudo-orifice large, 1/3 length of median lobe, transverse, short, orifice with proximal margin distinct, slightly sclerotized. Apodemes long, 1.81X as long as median lobe. Internal sac with orificial sclerites distinct, arcuate, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 177). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus

more or less flat. Gonocoxae long, slender, slightly arcuate. Bursa copulatrix with trilobed sclerite with median lobe slightly prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - We examined only the male and the female described above.

REMARKS AND COMPARATIVE NOTES - As reported by González, this species was labelled as *B. angulicollis* n. sp. by Solari, a name however which remained unpublished. Similarly labelled was the only male of *B. andalusiacus* which we examined in the Solari collection (MSNM). The species, the largest in the group, is characterized well by the robust elytra, the pronotum widest in the apical third and with sculpture formed by regular granules well-separated from each other.

BIOLOGICAL NOTES - No data are available.

TYPE LOCALITY - Arastepa (Sierra de Ronda, Málaga, southern Spain).

NOTES ON TYPE SPECIMENS - This species was described from one male and one female and according to the description, these are preserved respectively in the González collection (MCNM) and in the Franz collection (HFCM). Presently the first specimen is not available (Alonso Zarazaga, pers. comm., 1994). However, we examined the female.

RANGE - Known only from the type locality (Arastepa, Andalusia, southern Spain).

MATERIAL EXAMINED - Apart from the paratype (see above) 1 topotypic nontype specimen. Spain: Arastepa, Sierra de Ronda, Málaga, leg. H. Franz (1, MSNM).

16. *Bagous longirostris* Vitale (figs. 11, 107, 178)

Bagous longirostris Vitale, 1904: 171. Schilsky, 1907: 46 (as *costulatus*). Hustache, 1930: 206, 218 (as *costulatus*). Hoffmann, 1936: 61, 63 (as *costulatus*); 1954: 722 (as *costulatus*). González, 1971: 10, 13 (as *costulatus*).

REDESCRIPTION - Male (neotype). Body small, moderately elongate-oval, moderately robust. Rostrum moderately long, 0.93X as long as pronotum, reddish brown, subcylindrical; dorsal curvature weak and uneven; ventral curvature nearly straight; weakly depressed in apical 1/3; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.39X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.80X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish brown; funicle moderately long, 0.84X as long as scape; club 0.59X as long as funicle, reddish brown. Pronotum weakly transverse, 0.88X as long as broad; unevenly subparallel-sided, strongly constricted at base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus indistinct, broad, complete, of uniform depth and width or almost so; disc transversely weakly convex, rugose; intervals between punctures weakly granulose; apical and marginal setae few, moderately distinct, short, suberect to subrecumbent, curved to straight, coarse; scales granulate, not pitted, contiguous, round to indefinitely shaped, brownish; with 3 vittae; median vitta broad, complete, distinct, straight, pale grayish; lateral vitta broad, pale tan; ocular lobes weakly developed, reddish black. Prosternal sulcus moderately shallow, mode-

rately broad, moderately narrowed at apical contriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) rounded, Scutellum minute. Elytra gradually expanding behind humeri to declivity; 1.28X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, long, suberect, straight, fine, pale whitish, each surrounded by rosette of pale scales; scales granulate, contiguous, not pitted, round, arranged irregularly, brown and pale tan; tesselate; cuticle dark brown. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.64X as long as sternum 1. Sternum 1 with median impression deep, broad, continuous for entire length, deeper and slightly narrowed apically, not continued on sternum 2; apical margin declivous; 1.47X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.13X as long as 3 & 4 together. Sternum 5 flat; 0.80X as long as 3 & 4 together, 0.71X as long as 2, 0.36X as long as 1. Legs short. Femora reddish black. Tibiae dark reddish. Tarsi dark reddish. Length, pronotum and elytron: 1.80 mm.

Female. Same as male except: rostrum 1.07X as long as pronotum; ventral curvature even; not depressed toward apex; weakly expanded toward apex. Antennae inserted at middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 107). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, deeply emarginate and with long setae, in lateral view robust, strongly curved, bluntly rounded; dorsobasal margin not distinguishable; ventrobasal margin not distinguishable. Orifice more or less quadrate, short; proximal margin distinct, not sclerotized. Apodemes long, 2.29X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 178). Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by marked emargination; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, more or less straight from base to apex. Bursa copulatrix with trilobed sclerite with median lobe slightly prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The pronotum and elytra vary slightly in the more or less pronounced curvature of the sides. The two broad portions of dark brown scales on the pronotum may be more or less distinct, and sometimes are limited to the basal half. Size range 1.70-2.15 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous longirostris* is unique in the genus *Bagous* in possessing setae at the apex of the median lobe. However, this species is easily distinguishable also by the following combination of characters: small size, pronotum transverse and angulately curved with broad dorsal sulcus on midline, more distinct in apical third, elytra short with odd-numbered intervals distinctly more convex than even-numbered intervals.

BIOLOGICAL NOTE - Bellò (pers. comm., 1994) collected this species at Elmas by sifting soil

and debris under *Juncus acutus* L. in a habitat utilized as pasture and possibly subjected to periodic floods. The same collector found *B. longirostris* at Sardara by sifting soil at the foot of *Olea europea* L. in a meadow habitat and at Sant'Antioco by sifting under *Pistacia lentiscus* L.

TYPE LOCALITY - Castelbuono (Sicile).

NOTE ON TYPE SPECIMENS - This species was described based on a unique female collected at Contrada Passo-Badia, Messina (Sicily) and was related to *B. kirschi* (syn. of *B. costulatus*) by Vitale. Subsequent to the original description no other author cited this species. Unfortunately, the Vitale collection where the specimen was preserved, was destroyed (Conci, 1975). Due to the characters of rostrum, elytra and tarsi reported by Vitale we have no doubt that this species belongs to the *B. chevrolati* group and corresponds to the species which some authors erroneously named as *B. costulatus*. In order to avoid problems in the stability of nomenclature and according to Art. 75b (i) (ii) of the ICZN we designate one male labelled "Castelbuono, Sicile" (Hoffmann collection, MHNP) as the neotype of *B. longirostris* Vitale.

RANGE - Italy (Basilicata, Sicily, Sardinia), Greece (Epirus, Kephalonia).

MATERIAL EXAMINED - Apart from the neotype (see above) 39 nontype specimens. Italy: Basilicata (PZ), m 770, Oasi WWF - Lago Pantano di Pignola, 10.V.1991, leg. Angelini, St. 11 (2, FACF; 1, RCCM); Sicilia, Failla Tedaldi (4, MHNP); Sicilia, Ragusa leg. (2, MNHB); Sicilia or., Augusta, 14.V.1995, night sweeping, R. Borovec lgt. (1, RBCN); Sicilia, Castelbuono (2, MHNP); Castelbuono, Sicilia, L. Failla (1, MSNG; 1, MGCD); Sardegna, Elmas, 24.IV.1990, Bellò / *Juncus* sp. (3, GOCA); ditto, 21.IV.1990, Pierotti (7, GOCA); Oristano, Sardegna, U. Lostia (1, MSNM; 1, SMTD); Amortus, Ottobre, detriti / Quartu S. Elena, Sardinia, U. Lostia (1, MSNG); Cagliari, Sardara, 22.IV.1990, Bellò (1, GOCA); ditto, Pierotti (1, GOCA); Ussana, Cagliari, 1936, U. Lostia (1, MSNM); Ussana, I.1899 / U. Lostia, Sardinia (1, DEIE); Corse (1, MHNP). Greece: Platanusa, Xerovuni, Epiro, 700-800 m, 2.-12.VI.33, Beier / *B. brevisetis* m. i.l., det. Solari (1, MSNM); Kephalonia, 1908, Argostoli, legit M. Hilf, Coll. O. Leonhard (1, DEIE); Kephalonia, Eleutherios, April 05, Leonhard (4, DEIE); Kephalonia, Moczarski (1, MGCD).

17. *Bagous guttatus* Desbrochers (figs. 12, 108, 179)

Bagous guttatus Desbrochers, 1896: 98. Hustache, 1927: 128, 130. Hoffmann, 1936: 62, 63. González, 1971: 11, 13.

Bagous hipponensis Pic, 1928: 21 (**n. syn.**).

REDESCRIPTION - Male (lectotype). Body small, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.84X as long as pronotum, black with apex reddish brown, broadly subcylindrical; dorsal curvature weak and uneven; ventral curvature nearly straight; weakly depressed in apical 1/3; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, whitish yellow. Scrobe with dorsal margin reaching eye at dorsal margin. Head with swelling beside eye lacking; eyes weakly convex, small, 0.40X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.80X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish black; funicle moderately long, 0.85X as long as scape; club 0.64X as long

as funicle, black. Pronotum weakly transverse, 0.87X as long as broad; moderately rounded from base; apical constriction moderately weak, in apical 1/5, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; disc transversely moderately convex, rugose; intervals between punctures weakly granulose; apical and marginal setae few, moderately distinct, short, suberect, straight, fine; scales subgranulate, not pitted, subcontiguous, round to indefinitely shaped, brownish; with 3 vittae; median vitta narrow, complete, distinct, straight, whitish; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra gradually expanding behind humeri to declivity; 1.38X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, suberect, long, straight, coarse, pale whitish, each surrounded by rosette of pale scales; scales granulate, contiguous, not pitted, round, arranged irregularly, black, brown, and white; tesselate; cuticle dark brown. Metathoracic wing rudimentary. Mesosternal process small, subtriangular between coxae. Metasternum 0.70X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, deeper and not narrowed apically, not continued on sternum 2; apical margin not declivous; 1.29X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex, apically declivous; 1.50X as long as 3 & 4 together. Sternum 5 flat; 0.81X as long as 3 & 4 together, 0.54X as long as 2, 0.36X as long as 1. Legs short. Femora black. Tibiae dark reddish. Tarsi reddish black. Length, pronotum and elytron: 1.90 mm.

Female. Same as male except: rostrum 1.13X as long as pronotum, subcylindrical; dorsal curvature moderate and uneven; ventral curvature weak and even; weakly expanded toward apex. Antennae inserted just in front of middle. Sternum 1 with median impression shallow, basal only, flattened in apical 2/3, slightly narrowed apically. Sternum 2 flattened.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 108). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, weakly emarginate, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice more or less quadrate, short; proximal margin distinct, not sclerotized. Apodemes long, 2.14X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 179). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, more or less straight from base to apex. Bursa copulatrix with trilobed sclerite with lateral lobes slightly prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - We observed small differences in the more or less pronounced

curvature of the sides of the pronotum and elytra. The main colour of the vestiture varies from pale tan-brown to dark brown. Size range 1.65-2.15 mm.

REMARKS AND COMPARATIVE NOTES - Sometimes it is difficult to distinguish *B. guttatus* from *B. rudicollis* and *B. freti* which share the general habitus. However, apart from the differences in the male genitalia, *B. rudicollis* is larger and has a more transverse pronotum which is widest at the apical third, and *B. freti* has distinctly longer elytra. In his review González (1971) did not examine types of *B. guttatus* and under this name he considered two species, the true *B. guttatus* and *B. lyauteyi* to which he referred his illustrations of the general shape and the median lobe.

BIOLOGICAL NOTE - Bellò (pers. comm., 1994) collected this species under stones and sifting a bare patch utilized as pasture in an oak wood. This habitat is periodically humid and has a water rivulet.

TYPE LOCALITY - Saint Charles, Medjez-Amar (Algeria).

NOTE ON TYPE SPECIMENS - In the Desbrochers collection (MHNP) we examined 1 male syntype labelled "S. Charles, L. Clouet des Pesruches à Medjez-Amar, Algérie / Ex Musaeo Desbrochers, 1914" (lectotype here designated).

SYNONYMIES - *Bagous hipponensis* was described based on specimens collected at Bône (Algeria) by Leprieur. In the Pic collection (MNHP) we examined 1 male syntype labelled "Bône, Fevr. 59 / B 130 / *Leprieuri* / 6 / *hipponensis* Pic" (lectotype here designated), which has no specific differences from the lectotype of *B. guttatus*.

RANGE - Algeria, Tunisia, Morocco, southern Spain, central Italy, Sardinia, Sicily.

MATERIAL EXAMINED - Apart from the type specimens (see above) 41 nontype specimens. Italy: Monti della Tolfa (Roma), Acquatosta, 8.X.89, Pierotti (2, GOCA); Roma, Monti della Tolfa, 8.XI.89, leg. Bellò (6, GOCA); Sardinia, U. Lostia (1, MHNP; 3, DEIE); Sardinia (1, MHNP); Assemini, II.1898 (1, MSNG); Genoni, Lostia (1, MSNG); Sardinia, Oristano, U. Lostia (2, MGCD); Sardegna, Is. S. Antioco, 30.IV.90, Bellò / sotto *P. lentiscus* L. (3, GOCA); Ussana, 1897, U. Lostia (1, MSNG); Sicilia, Desbroch. / 65 Db. (1, DEIE). Spain: Hispan., Phason (1, SMTD); Andalusia, Rolph (1, DEIE). Morocco: Bouskoura, Maroc, Antoine (1, MHNP); Ifrane (Maroc), M. Atlas 1700 m, Bremond / *B. maroccanus* det. Hoffmann (1, MHNP). Tunisia: Fernana, Tunisie, Dr. Normand (1, MHNP; 1, MSNM); Media, Tunisie, ex Vauloger (1, MHNP). Algeria: Bône, Mars 54 / B 130 (1, MHNP); Bône, Juin 59 / B 130 (2, MHNP); Bône (Hènon), coll. de Vauloger / *hipponensis* Pic probabl. (1, MHNP); Bou-Berak, Kabylie, L. Puel (4, MHNP); Algérie, Bou-Berak (1, MHNP); Bulla Regia (2, MHNP); St. Charles, Algérie, A. Thery / *B. guttatus* m. (1, MHNP).

18. *Bagous marocanus* Hustache (figs. 109, 180)

Bagous marocanus Hustache, 1923: 71; 1927: 128, 130 (*maroccanus* err.). Hoffmann, 1936: 61, 63 (*maroccanus* err.). González, 1971: 11, 13 (*maroccanus* err.).

REDESCRIPTION - Male (lectotype). Body small, elongate-subcylindrical, moderately slender. Rostrum moderately long, 0.96X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and uneven; ventral curvature weak and uneven; very slightly depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with

swelling beside eye very weak; eyes flat, small, 0.40X as long as head across ocular lobes; scales granulate, contiguous, not pitted, round, whitish gray; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.75X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish brown; funicle moderately long, 0.87X as long as scape; club 0.66X as long as funicle, reddish brown. Pronotum weakly transverse, 0.90X as long as broad; moderately rounded from base; apical constriction moderately weak, in apical 1/4, dorsally distinct and uniform; sides weakly rounded behind constriction, not impressed somewhat behind round area; disc transversely weakly convex, rugulose; intervals between punctures weakly granulose; apical and marginal setae few, moderately distinct, short, suberect to subrecumbent, curved to straight, coarse; scales subgranulate, not pitted, contiguous, indefinitely shaped, dark brownish black; with 3 vittae; median vitta narrow, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes weakly developed, reddish black. Prosternal sulcus moderately deep, moderately broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum minute. Elytra subparallel behind humeri to declivity; 1.48X as long as wide across humeri; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, moderately long, erect to suberect, straight, fine, pale whitish, each surrounded by rosette of pale scales; scales nongranulate, contiguous, not pitted, round, arranged irregularly, black, brown, and white; tesselate; cuticle black. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.74X as long as sternum 1. Sternum 1 with median impression very shallow, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.42X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex, apically weakly declivous; 1.25X as long as 3 & 4 together. Sternum 5 flat, basally transversely convex; 0.70X as long as 3 & 4 together, 0.55X as long as 2, 0.41X as long as 1. Legs short. Femora black. Tibiae blackish brown. Tarsi dark reddish. Length, pronotum and elytron: 1.90 mm.

Female. Same as male except: rostrum 1.17X as long as pronotum; ventral curvature even, not depressed toward apex, weakly expanded toward apex. Antennae inserted at middle. Sternum 1 with apical margin not declivous. Sternum 2 convex with apical 2/5 declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 109). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; widest at orifice; extreme apex not elongate, broadly and uniformly rounded, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin not distinguishable; ventrobasal margin not distinguishable. Orifice transverse, short; proximal margin distinct, not sclerotized. Apodemes long, 1.42X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 180). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less flat. Gonocoxae long, slender, more or less straight from base to apex. Bursa copulatrix with trilobed sclerite with lateral lobes somewhat pro-

minent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The specimens examined showed only small differences in the curvature of the sides of the elytra. Size range 1.80-2.10 mm.

REMARKS AND COMPARATIVE NOTES - Due to its small narrow elongate body with the pronotum nearly as long as wide, *B. marocanus* should be confused only with *B. gracilentus* (see key to the species) among the North African species.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Ber Rechid (Morocco).

NOTE ON TYPE SPECIMENS - At the MHNP we examined 12 syntypes labelled "Ber Rechid (Maroc) Antoine, 10-XI-1922 / Type" and designated one male preserved in the Hustache collection as lectotype.

RANGE - Morocco.

MATERIAL EXAMINED - Apart from the type specimens (see above) 3 nontype specimens. Morocco: Ifrane, M. Atlas, leg. Bremond (2, MHNP); Marocco, Moy. Atl. m 2070, Passo Tanout ou Fillalt, 14.IV.1989, leg. G. Sama (1, GOCA).

19. *Bagous chevrolati* Tournier (figs. 13, 67, 110, 181)

Bagous chevrolati Tournier, 1874: 109. Schilsky, 1907: 45. Hustache, 1927: 128, 130. Hoffmann, 1936: 62, 63. González, 1971: 9, 13.

REDESCRIPTION - Male. Body small, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.84X as long as pronotum, reddish brown, subcylindrical; dorsal curvature moderate and uneven; ventral curvature weak and uneven; weakly depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown. Scrobe with dorsal margin reaching eye at dorsal margin. Head with swelling beside eye lacking; eyes weakly convex, small, 0.34X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons very broad, 0.81X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle reddish; funicle long, 0.95X as long as scape; club 0.58X as long as funicle, reddish brown. Pronotum weakly transverse, 0.91X as long as broad; moderately rounded from base; apical constriction strong, in apical 1/5, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; disc transversely moderately convex, rugulose; intervals between punctures weakly granulose; apical and marginal setae few, scarcely evident, very short, recumbent, curved, fine; scales granulate, not pitted, contiguous, round to indefinitely shaped, brownish; with 3 vittae; median vitta narrow, complete, distinct, straight, whitish; lateral vitta moderately broad, whitish; ocular lobes weakly developed, dark reddish. Prosternal sulcus deep, moderately broad, strongly narrowed at apical constriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra gradually expanding behind humeri to declivity; 1.33X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-

numbered intervals slightly more convex and elevated, with setae inconspicuous, very short, recumbent, straight, coarse, pale, each surrounded by scales of same color as other scales; scales subgranulate, contiguous, not pitted, round, arranged irregularly, black, brown, and white; tesselate; cuticle dark brown. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Metasternum 0.60X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, not deeper and not narrowed apically, continued shallowly on sternum 2; apical margin not declivous; 1.47X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, impression broad, shallow; apically declivous; 1.25X as long as 3 & 4 together. Sternum 5 flat; 0.75X as long as 3 & 4 together, 0.60X as long as 2, 0.36X as long as 1. Legs short. Femora dark reddish. Tibiae dark reddish. Tarsi reddish. Length, pronotum and elytron: 2.00 mm.

Female. Same as male except: rostrum 0.93X as long as pronotum, subcylindrical; dorsal curvature even; ventral curvature moderate and even, not depressed toward apex. Antennae inserted just behind middle. Sternum 1 with median impression very shallow, broad, basal only, not deeper and not narrowed apically, not continued on sternum 2; flattened in apical 2/3; apical margin not declivous. Sternum 2 basally convex; apical 2/5 declivous. Sternum 5 with subapical median impression only; apicomedian area flat; basal area transversely convex; median impression shallow, broad, transverse.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 110). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided, tapering toward apex; extreme apex not elongate, weakly emarginate, in lateral view robust, evenly and moderately curved, narrowly rounded; dorsobasal margin not distinguishable; ventrobasal margin not distinguishable. Orifice transverse, short; proximal margin distinct, not sclerotized. Apodemes long, 1.60X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 181). Spermatheca with ramus prominent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, more or less straight from base to apex. Bursa copulatrix with trilobed sclerite with lateral lobes somewhat prominent. Tergum VIII with apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The pattern of the dorsal vestiture markedly varies even in the same population: from prevalently light greyish, with dark scales forming four large maculae on the basal half of the pronotum and small sparse maculae on the elytra, to prevalently dark, with light scales forming three vittae on the pronotum and small distinct maculae on the odd-numbered elytral intervals. Size range 1.45-2.20 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous chevrolati* is one of the species in the group more easily distinguishable from the others due to the very short setae on the odd-numbered elytral intervals. Also in *B. ibericus* the setae are more distinct, although similarly recumbent.

BIOLOGICAL NOTE - Binaghi collected this species in series near Rome probably sifting roots of *Echinophora spinosa* L. in late summer (see material examined). Alonso Zarazaga (pers. comm., 1994) collected this species moving on the sand of a dune near the sea.

TYPE LOCALITY - Morocco (without other details).

NOTES ON TYPE SPECIMENS - In the Tournier collection (MHNP) we found 4 female syntypes, 2 arranged on the same card and labelled "Tanger, Olcèse / *Chevrolati* Trn. / type / Type" (we designated the one on the right as lectotype), and 2 labelled "Tanger, Olcèse / type / Type". This species was described also from specimens from Portugal not examined by us.

RANGE - Morocco, Algeria, Spain, Portugal, Gibraltar, central Italy, Sardinia, Corse.

MATERIAL EXAMINED - Apart from the type specimens (see above) 78 nontype specimens. Italy: Lazio, S. Nicola (Roma), VIII.1973, radici di *Echinophora spinosa* L., G. Binaghi (15, MSNG); Sardinia, U. Lostia (2, MNHB, 1, MHNP). France: Corsica / Tournier / ex Hopffg. (1, MNHB). Spain: Hispan., Phason (1, SMTD); Plaia los Lances, Tarifa, Cádiz, 27. III. 1991, M.A. Alonso Zarazaga leg. (1, AZCM). Gibraltar: Gibilterra, Desbrochers / *Chevrolati* ex Desbr. (1, MSNM); Champion / Gibraltar, Walker (1, MNHB; 10, BMNH). Portugal: Portugal (1, MHNP). Morocco: Maroc (2, DEIE, 2, MHNP; (1, SMTD); Marocco, Dohrn (2, SMTD); Maroc, Vaucher 1905 (2, MHNP); Maroc 1919, Casablanca, Coll. Ch. Primot (3, MHNP); Casablanca, Antoine (1, MHNP); Casablanca, VII.1919 (3, MHNP); Maroc, Fouarat, 1.XII.1961, leg. R. Mussard (1, MHNG); 1897, Tanger / *Chevrolati*, ex Vaucher (3, MSNM); 1897, Tanger / D. Stdgr. (2, MNHB); Tanger, Desbrochers / *Chevrolati* ex Desbr. (1, MSNM); Fairm. 77 / Tanger 1877, D. Fairmaire (2, MSNG); Tanger (1, UJIZ; 1, DEIE; 1, MHNP); Tanger, v. Heyden (1, SMTD); Tanger, Kirsch (3, SMTD); Tanger, Kraatz (2, SMTD); Tanger, Olcèse (1, DEIE); Tanger, Rolph (7, DEIE); Tanger, Stierlin (1, SMTD). Algeria: Algier (1, DEIE); Blidah, Kirsch (2, SMTD).

20. *Bagous ibericus* González (figs. 111, 182)

Bagous ibericus González, 1971: 6, 9, 13.

REDESCRIPTION - Male. Body small, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.90X as long as pronotum, black, subcylindrical; dorsal curvature moderate and uneven; ventral curvature weak and uneven; very slightly depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel, not expanding to apex; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, brown. Scrobe at dorsal margin. Head with swelling beside eye lacking; eyes weakly convex, small, 0.36X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, brownish; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. very broad, 0.83X as wide as head across eyes, moderately convex. Antennae inserted just in front of middle; scape and funicle blackish; funicle long, 0.94X as long as scape; club 0.61X as long as funicle, black. Pronotum weakly transverse, 0.88X as long as broad, subparallel-sided, widest near base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides weakly rounded and not impressed somewhat behind constriction; disc transversely moderately convex, rugose; intervals between punctures distinctly granulose; apical and marginal setae few, scarcely evident, very short, recumbent, curved, fine; scales coarsely granulate, not pitted, contiguous, round to indefinitely shaped, dark brownish black; with 3 vittae; median vitta narrow, complete, distinct, straight, pale tan; lateral vitta narrow, pale tan; ocular lobes weakly developed, reddish black. Prosternal sulcus moderately shallow, moderately broad, weakly narrowed at apical constriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum

minute. Elytra gradually expanding behind humeri to declivity; 1.35X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals slightly more convex and elevated, with setae conspicuous, short, recumbent, straight, coarse, pale whitish, each surrounded by scales of same color as other scales; scales granulate, contiguous, not pitted, round, arranged irregularly, black, brown, and tan; tesselate; cuticle dark brown. Metasternum 0.69X as long as sternum 1. Metathoracic wing rudimentary. Mesosternal process large, subrectangular between coxae. Sternum 1 with median impression deep, broad, continuous for entire length. deeper and not narrowed apically, continued deeply on sternum 2; apical margin moderately declivous; 1.33X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, with impression broad, moderately deep; apically declivous; 1.25X as long as 3 & 4 together. Sternum 5 flat, lacking evident impressions; basally flat; 0.81X as long as 3 & 4 together, 0.65X as long as 2, 0.50X as long as 1. Legs short. Femora black. Tibiae blackish brown. Tarsi blackish brown. Length, pronotum and elytron: 2.05 mm.

Female. Same as male except: rostrum 1.09X as long as pronotum; moderately depressed in apical 1/2; weakly expanded toward apex. Antennae inserted at middle. Sternum 1 with median impression interrupted (basal and apical), continued shallowly on sternum 2, convex in middle 1/3.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 111). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided; extreme apex not elongate, deeply emarginate, in lateral view robust, evenly and moderately curved, narrowly rounded; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin not distinguishable. Orifice transverse, short; proximal margin distinct, not sclerotized. Apodemes long, 2.06X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, pale, poorly sclerotized; with numerous fine spicules and very large basal sclerite complex. Female (fig. 182). Spermatheca with ramus distinct, not extending past of insertion of spermathecal duct, set off from body by shallow emargination; nodulus more or less uniformly, markedly convex. Gonocoxae long, slender, with margin oblique. Pygidium with apex broadly rounded. Bursa copulatrix with trilobed sclerite with lateral lobes somewhat prominent.

INTRASPECIFIC VARIATION - Apart from the sexual dimorphism, we did not observe noteworthy differences among the examined specimens. Size range 1.75-2.05 mm.

REMARKS AND COMPARATIVE NOTES - The specimens on which we based our redescription of the species correspond perfectly to the original description. *Bagous ibericus* is the only species in the group with a shallow prosternal sulcus. Due to the recumbent elytral setae it should be confused only with *B. chevrolati* (see key to the species).

BIOLOGICAL NOTE - González (1971) reported that he collected the holotype of the species under a stone at 1450 m altitude in a dry, sunny and deforested area. Meregalli and Borovec (pers. comm., 1994) collected the species by sifting soil under *Helianthemum* sp. and grasses on rock-steppe placed at the top of a hill, without water pools in proximity.

TYPE LOCALITY - Puerto de Oncala, Soria (northern Spain).

NOTE ON TYPE SPECIMENS - This species was described from a unique female collected by González and originally preserved in his collection (MCNM). Presently, according to Alonso Zarazaga (pers. comm., 1994) this specimen is not to be found in the González collection, but probably is at Barcelona where González worked.

RANGE - Northern Spain, Portugal.

MATERIAL EXAMINED - 4 nontype specimens. Spain: Spain, Vitoria, Sta. Cruz, 1400 m, Mte. Codes, 14.VI.1994, leg. Meregalli & Borovec (1, RBCN; 1, MMCT; 1, RCCM). Portugal: S. Martinho, G. de Barros (1, UJIZ).

21. *Bagous costulatus* Perris (fig. 14, 112, 183)

Bagous costulatus Perris, 1870: 23.

Bagous kirschi Reitter, 1884: 121. Schilsky, 1907: 47. Hoffmann, 1936: 61, 63. González, 1971: 11, 13 (**n. syn.**).

REDESCRIPTION - Male (lectotype). Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately long, 0.93X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; very slightly depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown, sparser apically; fringe of scales along ventral margin at middle 1/3 lacking. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.38X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, seta-like, linearly arranged. Frons very broad, 0.76X as wide as head across eyes, moderately convex. Antennae inserted at apical 2/5; scape and funicle reddish brown; funicle moderately long, 0.82X as long as scape; club 0.58X as long as funicle, reddish brown. Pronotum transverse, 0.78X as long as broad; unevenly subparallel, very weakly rounded from base; apical constriction moderate, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, slightly impressed behind round area; disc transversely moderately convex, rugose; intervals between punctures distinctly granulose; apical and marginal setae few, moderately distinct, short, erect, curved, fine; scales granulate, not pitted, contiguous, indefinitely shaped, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes weakly developed, reddish black. Prosternal sulcus moderately deep, broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum minute. Elytra subparallel behind humeri, weakly arcuately expanding in middle; 1.37X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals slightly more convex and elevated, with setae conspicuous, long, erect to suberect, straight, fine, pale whitish, each surrounded by scales of same color as other scales; scales subgranulate, contiguous, not pitted, round, arranged irregularly, brownish; cuticle black. Metasternum 0.72X as long as sternum 1. Metathoracic wing rudimentary. Mesosternal process large, subtriangular between coxae. Sternum 1 with median impression moderately deep, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin

weakly declivous; 1.61X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 basally convex, apically declivous; 1.43X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally transversely convex; median impression shallow, narrow, transverse; 0.89X as long as 3 & 4 together, 0.59X as long as 2, 0.43X as long as 1. Legs short. Femora black. Tibiae blackish brown. Tarsi blckish brown. Length, pronotum and elytron: 2.00 mm.

Female. Same as male except: rostrum 1.01X as long as pronotum; dorsal curvature strong; ventral curvature moderate; moderately depressed in apical 1/2. Antennae inserted just in front of middle. Sternum 1 with median impression moderately narrow, interrupted (basal and apical), convex in middle 1/2.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 112). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; broadest basally, tapering toward apex; extreme apex elongate, more or less triangular, acute, explanate, in lateral view slender, upturned, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal margin not distinguishable; with one pair of sclerotized plates covering orifice; dorsal surface behind orifice distinctly sclerotized. Orifice more or less oval, elongate. Apodemes slender, of more or less uniform width, long, more or less straight, 1.47X as long as median lobe. Internal sac without orificial sclerites; with small basal sclerite complex and subbasal concentrations of elongate spicules. Female (fig. 183). Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, more or less parallel-sided. Bursa copulatrix with trilobed sclerite with median lobe markedly prominent. Tergum VIII subtriangular; apical margin bluntly rounded, very slightly reflexed but not forming distinct lip; apicolaterally slightly swollen; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The setae of the odd-numbered elytral intervals, always longer than in the other species, vary distinctly in length. Sometimes the dorsal vestiture is nearly unicolorous, greyish brown to dark brown. Size range 1.45-2.25 mm, but usually the length is 1.80 mm or larger.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. sabellai*. Both are characterized primarily by the shape of the median lobe and of the endophallic sclerites, by the lack of scales along the ventral margin of the rostrum and by the presence of long erect setae on the odd-numbered intervals, which is not similar to any other species in the group. Moreover, the pronotum has rounded sides and its sculpture is distinctly granulose. For differences between *B. costulatus* and *B. sabellai* see remarks of the latter species. It should be noted that *B. costulatus* sensu auctorum is actually *B. longirostris*.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Porto Vecchio (Corse).

NOTE ON TYPE SPECIMENS - In the Perris collection (ENSA) we examined one male syntype of this species corresponding perfectly to the original description and uniquely labelled "15892". In a page of the catalogue of the collected species handwritten by Perris, a copy of which was given to us by Leclant (pers. comm., 1993), it is reported as "15892 *Bagous costulatus* Perris, Corse, Reveliere". Therefore we designated this specimen as lectotype.

SYNONYMIES - *Bagous kirschi* Reitter was described based on specimens from Zákynthos which we did not examine. However, after the study of many specimens determined by Reitter with this name, we established its synonymy with *B. costulatus*.

RANGE - Central and southern Italy, Sardinia, Croatia, Crna Gora, Kerkira (= Corfu), and Zákynthos (= Zante).

MATERIAL EXAMINED - Apart from the type specimens (see above) 46 nontype specimens. Italy: Castel Martini, Larciano, 4.XI.1964 (1, MSNF); Roma, 22.XI.1961 (1, RCCM); Roma, Pietralata, 15.IV.1907, A. Tirelli (1, MSNM); Campobasso, G. Leoni (1, DEIE; 1, MSNM); Basilicata, Potenza, oasi WWF Lago Pantano di Pignola, m 770, St. 11, 10.V.1991, leg. Angelini (5, FACF; 8, GOCA; 5, RCCM); Sardegna, Oristano, U. Lostia (5, MSNG; 2, MSNM); Sardinien, Oristano (1, SMTD). France: Corse: Porto Vecchio (3, MHNP). Croatia: Dalmatien, Zara (2, SMTD). Crna Gora: Castelnuovo, 1898, Humler (1, MCNM). Greece: Corfu, Reitter (1, DEIE; 1, CWOB; 2, SMTD); Corfu, J. Sahlb. (2, MNHB; 1, DEIE); Corfu, Paganetti (2, MSNM); Corfu, Val di Ropa (1, DEIE).

22. **Bagous sabellai** n. sp. (fig. 113)

DESCRIPTION - Male (holotype). Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately long, 0.88X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; moderately depressed in apical 1/2; ventral margin angulate, subcarinate; sides subparallel; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, grayish brown, sparser apically; fringe of scales along ventral margin at middle 1/3 lacking. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.37X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, seta-like, linearly arranged. Frons very broad, 0.79X as wide as head across eyes, moderately convex. Antennae inserted at apical 2/5; scape and funicle reddish brown; funicle moderately long, 0.80X as long as scape; club 0.55X as long as funicle, reddish brown. Pronotum transverse, 0.83X as long as broad; unevenly subparallel, very weakly rounded from base; apical constriction weak, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, slightly impressed behind round area; disc transversely moderately convex, rugose; intervals between punctures distinctly granulose; apical and marginal setae few, moderately distinct, short, erect, curved, fine; scales granulate, not pitted, contiguous, indefinitely shaped, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes weakly developed, reddish black. Prosternal sulcus moderately deep, broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum minute. Elytra gradually expanding behind humeri to declivity; 1.33X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals distinctly more convex and elevated, with setae conspicuous, long, erect to suberect, straight, fine, pale whitish, each surrounded by scales of same color as other scales; scales subgranulate, contiguous, not pitted, round,

arranged irregularly, brownish; cuticle black. Metasternum 0.72X as long as sternum 1. Metathoracic wing rudimentary. Mesosternal process large, subtriangular between coxae. Sternum 1 with median impression moderately deep, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.65X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 basally convex, apically declivous; 1.43X as long as 3 & 4 together. Sternum 5 with subapical median impression only, basally transversely convex; median impression shallow, narrow, transverse; 0.92X as long as 3 & 4 together, 0.60X as long as 2, 0.44X as long as 1. Legs short. Femora black. Tibiae blackish brown. Tarsi blckish brown. Length, pronotum and elytron: 2.10 mm.

Female. Not known.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 113). Median lobe with dorsal surface poorly sclerotized, more or less membranous; ventral surface membranous; more or less parallel-sided tapering toward apex; extreme apex somewhat elongate, subacute, narrowly rounded, in lateral view slender, declivous, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal margin not distinguishable; with one pair of large sclerotized plates covering orifice; dorsal surface behind orifice distinctly sclerotized. Orifice more or less oval, elongate. Apodemes slender, of more or less uniform width, long, more or less straight, 0.96X as long as median lobe. Internal sac without orificial sclerites; with small basal sclerite complex and subbasal concentrations of elongate spicules.

REMARKS AND COMPARATIVE NOTES - This species is clearly closely related to *B. costulatus*, with which it shares the general shape of the median lobe although showing some evident differences (compare fig. 112 to fig. 113). With regard to the external morphology, *B. sabellai* differs from *B. costulatus* by the pronotum with less evident apical constriction, the elytra widest at apical third, less globose and with more convex odd-numbered intervals.

ETYMOLOGICAL NOTE - This species is named after our colleague and friend Giorgio Sabella, who collected the type specimen.

BIOLOGICAL NOTE - The only known specimen of this species was collected by sifting soil at the base of *Quercus* sp.

TYPE LOCALITY - Ipsos environment (Greece, Peloponnese, Arcadia).

NOTE ON TYPE SPECIMEN - Holotype (RCCM): "Grecia, strada Ipsous (ex Tripsonda)-Hrissovitsi, 5 km da Ipsous, 1000 m, 7.V.1994, leg. Sabella".

RANGE - Only known from the type locality in the Peloponnese (Greece).

MATERIAL EXAMINED - We studied only the holotype.

Bagous cyperorum group

This species group is characterized by: integument completely hidden by smooth whitish scales (fig. 15); elytra covered with irregularly shaped polygonal scales arranged in two nearly regular rows on each interval; elytral intervals nearly flat; rostrum cylindrical in both sexes, with sparse setae; antennal funicle with segment 7 distinctly separated from club and with pubescence as sparse as other segments; tarsomere 3 subcordate, nearly as long as wide, not wider at apex than tarsomere 2; internal sac of median lobe with small basal sclerite complex (fig. 95); female sternum VIII with apical setae numerous, long, robust, with basal

point of delimitation not distinguishable, arms and apodemes apparently forming two straight rods, fenestral area absent, apodemes broadly divergent very near base, broadly separated to near base; bursa copulatrix with apically trilobed sclerite (fig. 166).

Presently this group is based only on the very distinctive desert species *B. cyperorum* (for which the monotypic genus *Fontenellus* was created by Hoffmann, 1962) and represents the sister group of the *B. chevrolati* group, as clearly emphasized by the features of the male (basal sclerite complex) as well as female (sternum VIII, apodemes, bursa copulatrix) genitalia.

23. *Bagous cyperorum* Peyerimhoff (figs. 15, 95, 166)

Bagous cyperorum Peyerimhoff, 1929: 39.

Fontenellus cyperorum (Peyerimhoff), Hoffmann, 1962: 120.

REDESCRIPTION - Male. Body medium-sized, elongate-subcylindrical, moderately slender. Rostrum moderately long, 0.93X as long as pronotum, reddish brown, subcylindrical; dorsal curvature weak and uneven; ventral curvature weak and uneven; not more distinctly depressed toward apex; ventral margin not angulate, not carinate; sides subparallel, slightly wider in apical 1/10; scales dense in basal 2/3, subgranulate, contiguous, not pitted, round to oval, whitish. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye strong; eyes flat, small, 0.42X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, gray brown; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.75X as wide as head across eyes, moderately convex, shallowly impressed, moderately distinctly set off from rostrum by shallow median impression; not sulcate nor foveate medially. Antennae inserted at middle, scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle moderately long, 0.80X as long as scape, segment 1 stout, segment 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; club 0.56X as long as funicle, reddish, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.94X as long as broad; moderately rounded from base; apical constriction strong, in apical 1/5, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely moderately convex; intervals between punctures flattened (hidden by scales); apical and marginal setae few, moderately distinct, short, suberect to subrecumbent, straight, fine; scales flattened, not pitted, contiguous, round, pale tan; with 3 vittae; median vitta moderately broad, complete, indefinite, uneven, whitish; lateral vitta moderately broad, whitish; ocular lobes weakly developed, dark reddish. Prosternal sulcus very deep, narrow, weakly narrowed at apical constriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra gradually narrowing behind humeri to declivity; 1.56X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely rounded; even-numbered intervals flattened; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, suberect to subrecumbent, straight, fine, pale, each surrounded by scales of same color as other scales; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves indistinct, shallow, narrow, with punctures minute; scales flattened, contiguous, not pitted, polygonal, nearly arranged in rows of regular

pairs on intervals, whitish gray and pale tan; subvittate; cuticle reddish brown. Metathoracic wing rudimentary. Mesosternal process small, subtriangular between coxae. Metasternum 0.93X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, deeper and not narrowed apically, continued deeply on sternum 2; apical margin not declivous; 1.45X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 with impression broad, moderately deep; apically declivous; 1.33X as long as 3 & 4 together. Sternum 5 laking evident impressions, basally transversely convex; with cluster of three to four erect, coarse apicolateral setae; 0.86X as long as 3 & 4 together, 0.62X as long as 2, 0.41X as long as 1. Legs moderately long. Femora weakly clavate, dark reddish. Tibiae moderately slender, dark reddish; inner margin weakly bisinuate, outer margin straight or nearly so toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles, outer surface with short, moderately distinct bristles; uncus moderately short, moderately stout, shorter than width of tibial apex. Tarsi moderately short, broad, reddish; tarsomeres 1-3 broadened toward apex; tarsomere 3 not wider at apex than 2, subcordate, rather deeply emarginate; tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with scales and with several long bristles. Length, pronotum and elytron: 3.35 mm.

Female. Same as male except: rostrum 0.93X as long as pronotum. Antennae inserted at basal 2/5. Sternum 1 with median impression moderately shallow, continued shallowly on sternum 2; apical margin declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 95). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface membranous; more or less parallel-sided; extreme apex elongate, more or less triangular, subacute, narrowly rounded, in lateral view robust, sinuate, tapering; dorsobasal margin distinct, truncate; ventrobasal margin not distinguishable. Orifice more or less oval, short; proximal margin distinct, slightly sclerotized. Apodemes long, 1.01X as long as median lobe. Internal sac with orificial sclerites indistinct, acute, pale, poorly sclerotized; lacking distinct teeth or concentrations of spicules; with small basal sclerite complex. Tegmen with cap-piece. Female (fig. 166). Spermatheca with ramus distinct, not extending past insertion of spermathecal duct, with outline almost uniformly continuous with body; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae long, robust, more or less straight from base to apex. Bursa copulatrix with trilobed sclerite with median lobe slightly prominent. Tergum VIII transverse, much wider than long; apical margin bluntly rounded. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The elytral vestiture varies from unicolorous to vittate with the odd-numbered intervals darker than the even-numbered intervals (brown vs. pale tan). Size range 3.50-3.70 mm.

REMARKS AND COMPARATIVE NOTES - Due to the markedly characteristic habitus (see diagnosis of the group), this species cannot be confused with any other species of the genus.

BIOLOGICAL NOTE - Peyerimhoff collected the type specimen sifting roots of *Cyperus* sp. At Baynunah, a sand-gravel plain with *Haloxylon salicornicum* and *Zygophyllum hamiense* as dominant plants, the specimens were all caught in pitfall traps located in both sand and gravel ground. They occurred fairly infrequently and were not caught at all between October 1993

and January 1994. They were most numerous in April 1994 when five specimens were found in three of the six trapping lines (Tigar, pers. comm., 1994).

TYPE LOCALITY - Nefta (Tunisia).

NOTE ON TYPE SPECIMENS - This species was described based on a single specimen which we did not examine.

RANGE - Mauritania, Algeria (Kebylla, Chott el Djerid; Hoffmann, 1962), Tunisia, Chad, Arabian peninsula (United Arab Emirates).

MATERIAL EXAMINED - We examined 8 nontype specimens. Mauritania: Mauritania S., Aouinat Cheradi... (illegible), 25.X.1948, B. J. Miré (1, MHNP). Chad: Ennedi, Oued Elly, 18.VIII.1958 / J. Mateu (1, MHNP); Ennedi, oued Naouach pr. Ita, 4.VIII.1949, Ph. Dr. Miré (1, MHNP); Tibesti, L. Sière S. W., Ph. Dr. Miré / Tougouma, 6.X.1956 (1, MHNP). United Arab Emirates: Baynunah Line 2 2 39, 6-62-001 E 26-54-335 N, Pitfall Trap, 11.III.1994, leg. B. Tigar (1, BMNH); ditto except 7.IV (1, BMNH); ditto except 10.IV (2, BMNH).

Bagous bipunctatus group

This species group is characterized by: internal sac with pair of dense fields of spicules (in *B. vicinus* Hustache from India these spicules enlarged) behind orifice; median lobe generally widest at base thence constricted to parallel-sided and with basal plate between apodemes (except *B. ryukyuensis* O'Brien & Morimoto and *B. kagiashi* Chûjô & Morimoto from Japan) (figs. 114-120); spermatheca (figs. 186, 189-191) rather distinctly triangularly shaped with nodulus somewhat produced (except *B. bagdatensis*, *B. glabrirostris* and *B. vicinus*, figs. 187-188); elytral disc weakly angulately transversely impressed in basal 1/3.

Among these postulated synapomorphic states only the dense field of spicules of the internal sac is possessed by all the species apparently belonging to the group, whereas the other characters are modified in some of the included species and/or other characters are shared only by most species of the group. Otherwise the group is heterogeneous in external structure such as tarsal shape and tibial curvature and dentition due to considerably homoplasy (including reversals and parallelisms).

Presently this group includes seven western Palearctic species (most of which were included previously in the subgenus *Abagous* because of the subcordate tarsomere 3), and six Japanese species and two Indian species, but other representatives surely occur in the eastern Palearctic and Afrotropical regions.

24. *Bagous puncticollis* Boheman (figs. 16, 119, 186)

Bagous puncticollis Boheman, 1845: 86. Neresheimer & Wagner, 1930: 267, 268. Hoffmann, 1954: 740, 742. Dieckmann, 1964a: 98; 1983: 370, 372. Lohse, 1983: 55.

Bagous glabrirostris var. *major* Fowler, 1913: 189. Sharp, 1917a: 30 (as *collignensis*). Blair, 1935: 252.

Bagous puncticollis var. *wagneri* Hoffmann, 1954: 743 (**n. syn.**).

REDESCRIPTION - Male. Body medium-sized, moderately broad-oval, moderately robust. Rostrum moderately long, 0.96X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus moderately developed, broad, long, coarsely punctate; ventral margin subangulate, not carinate; sides

subparallel, gradually expanding in apical 2/3; scales dense in basal 1/2, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.49X as long as head across ocular lobes; scales subgranulate, subcontiguous, coarsely pitted, round, brownish black, and brown; supraocular setae few, very short, indistinct, recumbent, curved, coarse, linearly arranged. Frons broad, 0.63X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, indistinctly set off from rostrum by shallow impression; median sulcus deep, narrow, long. Antennae inserted at apical 1/3; scape moderately long, slender, subclavate; scape and funicle reddish; funicle moderately long, 0.73X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.64X as long as funicle, reddish black, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.93X as long as broad; parallel-sided; apical constriction moderate, in apical 1/5, dorsally distinct and uniform; sides weakly rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; subbasal impression small, weak, distinct; disc transversely weakly convex, rugose; apical and marginal setae few, moderately distinct, short, subrecumbent, curved, fine; scales subgranulate, pitted, subcontiguous, round, black; with 3 vittae; median vitta narrow, complete, distinct, uneven, pale grayish; lateral vitta moderately broad, pale grayish; ocular lobes moderately developed, dark reddish. Prosternal sulcus moderately deep, moderately broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.37X as long as wide; disc area flat; declivity at 75 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate, subacute, somewhat produced; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, very short, recumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; disc strongly transversely angulately impressed across basal 1/3; antedeclivital callus of interval 3 lacking (though white maculae often appear raised); declivital callus of interval 5 well-developed, subacute; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, subcontiguous, finely pitted, round, arranged irregularly, black, brown, and white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.18X as long as sternum 1. Sternum 1 with median impression very shallow, narrow, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.19X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 flattened; not apically declivous; 1.44X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; lateral impressions very shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.00X as long as 3 & 4 together, 0.69X as long as 2, 0.61X as long as 1. Legs moderately long. Femora clavate, reddish black. Tibiae slender, reddish; inner margin weakly

bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, indistinct, minute, with several moderately short bristles; outer surface with short, inconspicuous bristles; uncus moderately long, moderately slender, as long as width of tibial apex. Tarsi moderately short, broad, dark reddish; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, broadly cordate, rather deeply emarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.95 mm.

Female. Same as male except: rostrum 0.92X as long as pronotum; very slightly depressed in apical 1/2; expanded toward apex. Antennae inserted at apical 2/5. Sternum 1 with median impression shallow, interrupted (basal and apical), not continued on sternum 2; flattened in middle 1/2. Sternum 2 with apical 2/5 declivous. Sternum 5 with median subapical and pair of subbasal lateral impressions; median impression very shallow, broad, subtriangular; lateral impression slightly deeper than median impression.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 119). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided; extreme apex elongate, acute, angulately explanate, in lateral view slender, evenly and moderately curved, tapering; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin indistinct, with short basal plate extending between apodemes, visible from above. Orifice triangular, elongate; proximal margin distinct, slightly sclerotized. Apodemes long, 1.14X as long as median lobe. Internal sac with orificial sclerites indistinct, rounded, pale, poorly sclerotized; with numerous fine spicules. Tegmen with cap-piece. Female (fig. 186). Sternum VIII with apical setae several, long, slender; arms moderately broad, parallel, inner margins more or less straight, outer margins broadly arcuate; fenestral area open, elongate-narrow. Apodemes strongly divergent near apex only; narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly flat. Gonocoxae short, robust, tapering toward apex, arcuate. Bursa copulatrix with two blade-like sclerites. Tergum VIII transverse, much wider than long; apical margin broadly truncate; apicolaterally slightly swollen. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - The V-shaped elytral impression, usually deep and distinct, sometimes may be shallow and less evident. The sides of the pronotum are parallel to feebly curved. The colour of the antennae and legs is usually reddish brown but sometimes darker. Size range 2.50-3.35 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous puncticollis* is distinguished easily from the western Palearctic species with a broad tarsomere 3, if one considers also the subquadrate pronotum with nearly parallel sides, tarsomere 3 not transverse but as long as wide, the colour of tarsi, antennal scape and funicle reddish brown, and the elytral V-shaped impression. However, some specimens of *B. lutulentus* and a few specimens of *B. glabrirostris* have a more or less shallow V-shaped elytral impression.

BIOLOGICAL NOTE - This species may be polyphagous since it was observed on *Stratiodes aloides* L., *Helodea canadensis* Rich. and *Hydrocharis morsus-ranae* L. *Bagous puncticollis* was often collected in debris on the sides of pools and marshes.

TYPE LOCALITY - Lipsia (Germany).

NOTES ON TYPE SPECIMENS - We examined one female syntype (NHRS) labelled "Typus / *B. collignensis* Hbst., Lipsia, Kunze / *Bagous puncticollis* Boh., det. Bruce 1966" (lectotype here designated).

SYNONYMIES - We agree with Blair (1935), who synonymized *B. glabrirostris* var. *major* from England with *B. puncticollis*. Hoffmann (1954) described the variety *wagneri* for specimens of *B. puncticollis* from Hungary, which he believed different from the French specimens based on the larger scales of the pronotum. Therefore, according to the Art. 45f (ii) of the ICZN the name must be considered at the subspecific rank. In the Hoffmann collection (MHNP) we found neither specimens classified with this name nor specimens of *B. puncticollis* from Hungary. However, we examined several specimens of *B. puncticollis* from Hungary without observing differences from the typical form.

RANGE - Europe.

MATERIAL EXAMINED - We studied 87 specimens from Sweden, Poland, Hungary, Germany, France, Belgium, Italy and Romania.

25. *Bagous lutulentus* (Gyllenhal) (figs. 19, 70, 118, 189)

Rhynchaenus lutulentus Gyllenhal, 1813: 86.
Bagous lutulentus (Gyllenhal), Schönherr, 1836: 545; 1845: 85. Brisout, 1863: 512. Neresheimer & Wagner, 1930: 266. Hoffmann, 1954: 740, 743. Dieckmann, 1964a: 99, 106; 1983: 370, 372. Lohse, 1983: 56. Tempère & Péricart, 1989: 171.
Abagous lutulentus (Gyllenhal), Sharp, 1917a: 29.
Bagous binotatus Stephens, 1831: 48. Champion, 1898: 54. Blair, 1935: 252.
Bagous mundanus Boheman, 1845: 79. Brisout, 1863: 519. Neresheimer & Wagner, 1930: 277. **(n. syn.)**
Bagous nigritarsis Thomson, 1865: 190. Schilsky, 1907: 56. Urban, 1922: 18. Hustache, 1930: 211, 235.
Abagous nigritarsis (Thomson), Sharp, 1917a: 30.

REDESCRIPTION - Male. Body medium-sized, moderately broad-oval, moderately robust. Rostrum moderately long, 0.98X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin subangulate, subcarinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.44X as long as head across ocular lobes; scales nongranulate, subcontiguous, pitted, round, brownish; supraocular setae few, short, distinct, subrecumbent, curved, slender, linearly arranged. Frons broad, 0.69X as wide as head across eyes, weakly convex, shallowly impressed, indistinctly set off from rostrum by shallow impression; median sulcus moderately deep, narrow, long. Antennae inserted just behind apical 1/3; scape moderately long, slender, subclavate; scape and funicle reddish black; funicle moderately long, 0.79X as long as scape, with segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.64X as long as funicle, reddish black, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum

weakly transverse, 0.90X as long as broad; moderately expanding from base; apical constriction moderately weak, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; subbasal impression small, weak, distinct; disc transversely moderately convex, weakly rugulose; apical and marginal setae few; scales subgranulate, pitted, subcontiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale grayish brown; lateral vitta moderately broad, pale grayish brown; ocular lobes moderately developed, reddish brown. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.37X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate, subacute, somewhat produced; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, with setae conspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; disc weakly transversely angulately impressed across basal 1/3; antedeclivital callus of interval 3 lacking (though white maculae often appear raised); declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, shallow, narrow; punctures large, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, subcontiguous, finely pitted, round, arranged irregularly, black, brown, and white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.07X as long as sternum 1. Sternum 1 with median impression very shallow, moderately narrow, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.28X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 1/2 steeply declivous; 1.20X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; basally flat; median impression very shallow, broad, subtriangular, lateral impressions shallow, large, slightly deeper than median impression; with cluster of three to four suberect, coarse apicolateral setae; 1.30X as long as 3 & 4 together, 1.08X as long as 2, 0.70X as long as 1. Legs moderately long. Femora clavate, reddish black. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, indistinct, minute, with few inconspicuous bristles, outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, subequal to width of tibial apex. Tarsi moderately short, broad, dark brown; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, broadly cordate, rather deeply emarginate (fig. 70); tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally finely pubescent. Length, pronotum and elytron: 2.80 mm.

Female. Same as male except: rostrum 1.02X as long as pronotum; dorsal curvature weak; very slightly depressed in apical 1/2. Antennae inserted at apical 2/5. Sternum 1 with median impression basal only, convex in apical 2/3.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 118). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; very slightly broader basally, extreme apex somewhat elongate, subacute, narrowly rounded, explanate, in lateral view slender, evenly and moderately curved, tapering; dorsobasal margin indistinct, shallowly emarginate; ventrobasal margin indistinct, with short basal plate extending between apodemes, visible from above. Orifice transverse, short; with proximal margin distinct, slightly sclerotized. Apodemes long, 1.10X as long as median lobe. Internal sac with orificial sclerites indistinct, subacute, pale, poorly sclerotized; with numerous fine spicules. Tegmen with cap-piece. Female (fig. 189). Sternum VIII with apical setae few, short, slender; arms triangular, apically convergent, with inner margins broadly, deeply arcuate, with outer margins straight; fenestral area open, broad-oval. Apodemes broadly divergent near apex only; narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, strongly convex. Gonocoxae long, robust, tapering toward apex, arcuate. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin bluntly rounded, very slightly reflexed but not forming distinct lip. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - In some specimens the elytra have an evident moderately shallow V-shaped impression at the proximal 1/3. The colour of the tarsi and the antennal funicle varies from dark brown to black. Size range 2.20-3.20 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous lutulentus* is very closely related to *B. robustus* and *B. olcesei* from which it usually differs by the darker color of the tarsi and antennal funicle (dark brown to blackish vs. reddish brown), the scales of the elytra of two more contrasted colors (dark brown and whitish grey vs. dark brown and pale tan or pale brown and greyish) and the shape of the male genitalia. From *B. robustus* it differs also by its smaller size (mm 2.2-3.2 vs. 3.0-4.8) and from *B. olcesei* by the less cylindrical elytra.

BIOLOGICAL NOTE - The host plant of this species is *Equisetum fluviatile* L. (= *E. limosum* L.) of which the adult eats the stems. Larvae and pupae were collected in the apical portion of the stems. The pupa changes into the adult in 6 days (Urban, 1922).

TYPE LOCALITY - Sweden (without further detail).

NOTES ON TYPE SPECIMENS - We examined the lectotype (female) labelled " [Uppsala Univ. Zool. Mus. Gyllenhals saml. Typ. nr. 1259] Lectotypus *Bagous lutulentus* Gyll. design. N. Bruce - 66" and 28 paralectotypes all preserved at ZMUU.

SYNONYMIES - We examined one male syntype of *B. binotatus* without label (lectotype here designated) in the Stephens collection (BMNH), 14 syntypes of *B. nigritarsis* (we designated one male already dissected and labelled "Sm. / Bhn. / *Bagous lutulentus* Gyll., det. N. Bruce, 1966" as lectotype) in the Thomson collection (MZUL), one female syntype of *B. mundanus* Boheman labelled "Typus / Helvetia, Chevrier, Germar" (lectotype here designated) in the Boheman collection (NHRS) and three syntypes of *B. olcesei*, one male and two females, all labelled "Tanger, Olcèse / type" (male here designated as lectotype) in the Tournier collection (MHNP).

We confirm the synonymies of *B. binotatus* and *B. nigritarsis* with *B. lutulentus* as proposed by other authors. In regard to *B. mundanus*, in contrast to the opinion of Nereshei-

mer & Wagner (1930), we believe that the above-mentioned specimen of this species in NHRS belongs to the type-series even though it has a wide tarsomere 3 instead of narrow as reported in the original description. Since otherwise the specimen agrees perfectly with the description, we believe that Boheman described the tarsus wrongly. Thus, we establish the synonymy of *B. mundanus* with *B. lutulentus*.

RANGE - Europe, Anatolia, Caucasus.

MATERIAL EXAMINED - We examined about 350 specimens from Finland, Sweden, Norway, Poland, Hungary, Slovakia, Czech Rep., Germany, France, Austria, Italy, Albania, Romania, Bulgaria, Turkey and Georgia.

26. *Bagous olcesei* Tournier (fig. 117)

Bagous olcesei Tournier, 1874: 108. Hustache, 1927: 127, 133.

REDESCRIPTION - Male (lectotype). Same as *B. lutulentus* except: body moderately elongate-oval; rostrum moderately short, 0.88X as long as pronotum, scape and funicle reddish brown; pronotum with median and lateral vittae pale tan; elytra brown and pale tan, disc area convex; tarsi reddish brown, tarsomere 3 markedly wider than 2. Female. Rostrum 0.90X as long as pronotum. Genitalia. Male (fig. 117). Median lobe distinctly broadest basally; apex in lateral view declivous; apodemes 1.34X as long as median lobe.

INTRASPECIFIC VARIATION - The colour of the elytral vestiture varies from uniformly brown to pale brown with whitish grey maculae. Size range 2.40-2.80 mm.

REMARKS AND COMPARATIVE NOTES - This species appears intermediate between *B. lutulentus* and *B. robustus*. With the former it shares size and shape of pronotum and with the latter the size of tarsal segment 3 and the colour of vestiture, antennae and tarsi (see key to the species). Finally, *B. olcesei* differs from both species by the more cylindrical elytra and the shape of the median lobe.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Tanger (Morocco).

NOTE ON TYPE SPECIMENS - We examined three syntypes of *B. olcesei*, one male and two females, all labelled "Tanger, Olcèse / type" (male here designated as lectotype) in the Tournier collection (MHNP).

RANGE - Morocco.

MATERIAL EXAMINED - Apart from the type specimens 12 nontype specimens. Morocco: Maroc (1, MHNP); Maroc, H. Vaucher coll. (4, USNM); Maroc, Chechoueen (1, MHNP); Larache, M. Escalera (1, MCNM); Tanger, 1897 (1, MHNP); Tanger, 1899 / coll. Vaucher (1, MSNM); Tanger (3, MHNP).

27. *Bagous robustus* Brisout (figs. 71, 116, 190)

Bagous robustus Brisout 1863: 513. Pic, 1928: 23. Neresheimer & Wagner, 1932a: 31, 36. Hoffmann, 1954: 740, 744. Dieckmann, 1964a: 99, 106; 1972: 28; 1983: 370, 372. Lohse, 1983: 56.

Bagous tenietensis Desbrochers, 1896: 101. Hustache, 1927: 127, 134. Pic, 1928: 23.

Bagous inermis Desbrochers, 1896: 101. Pic, 1928: 23.

Abagous rudis Sharp, 1917a: 31. Allen, 1992: 200.

Bagous robustoides Neresheimer & Wagner, 1932: 35. Hoffmann, 1954: 744.

REDESCRIPTION - Same as *B. lutulentus* except: body robust; rostrum moderately short, 0.89X as long as pronotum, black with apex reddish brown; antennal scape and funicle reddish brown; pronotum with sides widest just behind middle, median and lateral vittae pale tan; sternum 1 with median impression moderately deep; femora reddish brown; tibiae with outer surface with denticles several, distinct, small, and with conspicuous short bristles; tarsi reddish brown, tarsomere 3 markedly wider than 2 (fig. 71). Female. Rostrum 0.94X as long as pronotum. Genitalia. Male (fig 116). Median lobe tapering toward base, with extreme apex in lateral view declivous; apodemes 0.98X as long as median lobe.

Female (fig. 190). Sternum VIII with arms divergent with inner margins broadly, shallowly arcuate, with outer margins broadly, shallowly emarginate. Gonocoxae very robust.

INTRASPECIFIC VARIATION - The colour of the elytral vestiture varies from brown with more or less evident maculae of pale tan scales, to pale tan with whitish grey maculae. Size range 3.00-4.80 mm.

REMARKS AND COMPARATIVE NOTES - For many years *B. robustus* was considered synonymous with or a subspecies of *B. lutulentus*. Dieckmann (1972) finally established without doubt that it was a valid well-separated species, distinguishable from *B. lutulentus* by male genitalia and, although sometimes with difficulties, also by some small external differences (see key and remarks of the latter species as well as of *B. olcesei*).

BIOLOGICAL NOTE - This is a monophagous species living on *Alisma plantago* L., on which the adult feeds, piercing the leaves (Dieckmann, 1972).

TYPE LOCALITY - Crete (Greece).

NOTE ON TYPE SPECIMENS - This species was described from specimens from Greece (Zákynthos, Crete, Zebé). In the Brisout collection (MHNP) we examined one syntype labelled "Creta, *robustus* mihi nov. sp." (lectotype here designated), corresponding to the concept commonly held of the species.

SYNONYMIES - We examined one male syntype (MHNP) of *B. tenietensis* labelled "Teniet-el-Haad, Desbrochers 1889 / *lutosus* var? inters. ely. planis, proth. granulè" (lectotype here designated) and one female syntype (MHNP) of *B. inermis* labelled "Bône, des Pesruches / type" (lectotype here designated), the female holotype of *Abagous rudis* (BMNH) labelled "*Lutulentus* varietas / *Abagous rudis* type D. S. / Type" and many specimens of *B. robustoides* (MSNM) checked by Neresheimer & Wagner, and confirm their synonymy with *B. robustus* as reported by other authors.

RANGE - Europe, Anatolia, North Africa.

MATERIAL EXAMINED - We studied 95 specimens from Poland, Hungary, Germany, France, Italy, Croatia, Romania, Georgia, Morocco, Tunisia and Algeria.

28. *Bagous subcarinatus* Gyllenhal (figs. 20, 72, 120, 191)

Bagous subcarinatus Gyllenhal, 1836: 543; 1845: 77. Brisout, 1863: 502. Neresheimer & Wagner, 1930: 271. Ruter, 1937: 153. Hoffmann, 1954: 726, 731. Dieckmann, 1964a: 96, 100; 1983: 360, 365. Lohse, 1983: 51.

Bagous unguicularis Hustache, 1927: 126, 132.

REDESCRIPTION - Male. Body medium-sized, moderately broad-oval, moderately robust. Rostrum moderately short, 0.84X as long as pronotum, black, subcylindrical; dorsal curvature weak and even; ventral curvature nearly strong; not more distinctly depressed toward apex;

basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin weakly subangulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales moderately dense in basal 1/3, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.46X as long as head across ocular lobes; scales nongranulate, subcontiguous, coarsely pitted, round, brownish; supraocular setae few, short, indistinct, recumbent, curved, coarse, scale-like, linearly arranged. Frons broad, 0.61X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, indistinctly set off from rostrum by shallow impression; not sulcate nor foveate medially. Antennae inserted just in front of middle; scape moderately long, slender, subclavate; scape and funicle reddish; funicle moderately long, 0.78X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.57X as long as funicle, reddish brown, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.92X as long as broad; very weakly expanding from base; apical constriction weak, in apical 1/6, dorsally shallower medially; sides weakly rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales subgranulate, pitted, subcontiguous, round, brownish; with 3 vittae; median vitta narrow, complete, indefinite, straight, pale grayish; lateral vitta moderately broad, pale grayish; ocular lobes moderately developed, reddish brown. Prosternal sulcus moderately deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.44X as long as wide across humeri; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, very short, recumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; disc not transversely angulately impressed across basal 1/3; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 very weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, shallow, narrow; punctures small, moderately elongate, narrow, moderately deep, slightly wider than strial grooves; scales subgranulate, subcontiguous, finely pitted, round, arranged irregularly, black, brown, and white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.12X as long as sternum 1. Sternum 1 with median impression very shallow, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.31X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 flattened; not apically declivous; 1.62X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; apicomedian and basal area flat; median impression very shallow, narrow, triangular; lateral impression shallow, small, slightly deeper than median impression; with cluster of three to four suberect,

coarse apicolateral setae; 1.06X as long as 3 & 4 together, 0.65X as long as 2, 0.50X as long as 1. Legs moderately long. Femora subclavate, reddish black. Tibiae moderately slender, reddish black; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, indistinct, minute, with conspicuous short bristles; outer surface with short, inconspicuous bristles; uncus moderately long, moderately slender, longer than width of tibial apex. Tarsi long, linear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate (fig. 72); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.80 mm.

Female. Same as male except: rostrum 0.78X as long as pronotum; ventral curvature weak and even, very slightly depressed in apical 1/2. Sternum 1 with median impression interrupted (basal and apical), flattened in middle 1/2.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 120). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; very slightly broader basally; extreme apex somewhat elongate, subacute, narrowly rounded, angulately explanate, in lateral view slender, declivous, acute; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin indistinct, with short basal plate extending between apodemes, visible from above. Orifice triangular, short; proximal margin distinct, slightly sclerotized. Apodemes long, 0.99X as long as median lobe. Internal sac with orificial sclerites lacking; with numerous fine spicules. Tegmen with cap-piece. Female (fig. 191). Sternum VIII with apical setae few, very long, slender; arms moderately broad, parallel, with inner margins broadly, shallowly arcuate, with outer margins broadly arcuate; fenestral area open, broad-oval. Apodemes broadly divergent from apical 1/3; narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by marked emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, slightly convex. Gonocoxae short, robust, tapering toward apex, slightly arcuate. Bursa copulatrix simple, without sclerites. Tergum VIII transverse, much wider than long; apical margin bluntly rounded, very slightly reflexed but not forming distinct lip; apicolaterally slightly swollen; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - The elytral vestiture, apart from the white maculae on humeri and intervals 3 and 5, may be confusedly and indistinctly maculate to unicolorous dark greyish. Size range 2.80-3.20 mm.

REMARKS AND COMPARATIVE NOTES - Among the western Palearctic species of this species group, *B. subcarinatus* is easily distinguished by its very long tarsi. Based on external morphology it could be confused with *B. longitarsis*. However, this species has long tarsi although not as long as *B. subcarinatus* and its tarsomere 3 is not triangular. Moreover the tibiae have distinct denticles, the punctures of the elytral striae are minute, scarcely visible, and not at all invading the intervals, and the elytra are less elongate with a shorter caudal prolongation, which is markedly declivous in lateral view.

BIOLOGICAL NOTE - Usually the host plant of this species is *Ceratophyllum submersum* L., although it is likely that *B. subcarinatus* also lives on other plants (probably *Myriophillum*) since it has been collected in areas where there was no *Ceratophyllum*. The adult lives both

underwater and above water and it is found easily on emergent portions of the plant and in the muddy soil.

TYPE LOCALITY - France (without further detail).

NOTES ON TYPE SPECIMENS - We did not examine the type specimens of *B. subcarinatus* studied by Neresheimer & Wagner (1930) at NHRS. However, the identity of the species is well- established by consensus.

SYNONYMIES - *Bagous unguicularis* was described from a single specimen from La Calle (Tunisia) by Hustache, who did not know the true *B. subcarinatus* which he confused with *B. longitarsis*. Presently this specimen is not present in the Hustache collection (MHNP). However, the synonymy of this species with *B. subcarinatus*, already reported by Klima (1934), is without doubt.

RANGE - Europe, Caucasus, Anatolia, Central Asia (Turkmenistan, Uzbekistan), North Africa (Tunisia, Morocco).

MATERIAL EXAMINED - We studied about 320 specimens from Sweden, Poland, Germany, France, Hungary, Slovakia, Czech Rep., Switzerland, Austria, Italy, Croatia, Turkey, Georgia, Armenia, Iran, Uzbekistan and Morocco.

29. *Bagous glabrirostris* (Herbst) (figs. 17, 68, 114, 187)

Curculio glabrirostris Herbst, 1795: 254.

Bagous glabrirostris (Herbst), Schilsky, 1907: 54. Urban, 1923: 125. Hustache, 1930: 211, 234. Neresheimer & Wagner, 1930: 265. Hoffmann, 1954: 740, 741. Dieckmann, 1964a: 99, 108; 1983: 371, 373. Lohse, 1983: 56. Tempère & Péricart, 1989: 171.

REDESCRIPTION - Male. Body medium-sized, moderately broad-oval, moderately robust. Rostrum moderately long, 1.02X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; basal median carina lacking; basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin angulate, distinctly carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 1/2, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at dorsal margin. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.51X as long as head across ocular lobes; scales nongranulate, subcontiguous, pitted, round, brownish black, and brown; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons very broad, 0.70X as wide as head across eyes, weakly convex, not impressed, not set off from rostrum by impression; not sulcate nor foveate medially. Antennae inserted at apical 1/3; scape moderately long, slender, subclavate; scape and funicle reddish; funicle moderately long, 0.87X as long as scape, with segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.46X as long as funicle, reddish black, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.92X as long as broad; subparallel-sided; apical constriction weak,in apical 1/5, dorsally distinct and uniform; sides weakly rounded behind constriction, not impressed somewhat behind round area; median sulcus indistinct, narrow, incomplete, forming subapical and subbasal impressions, with subbasal impression small, weak, shallow, with apical impression small, weak, shallow; disc transversely weakly

convex, weakly rugulose; apical and marginal setae few, scarcely evident, short, subrecumbent, curved, fine; scales subgranulate, pitted, subcontiguous, round, blackish brown; with 3 vittae; median vitta narrow, complete, distinct, uneven, pale grayish brown; lateral vitta moderately broad, pale grayish brown; ocular lobes moderately developed, reddish brown. Prosternal sulcus moderately deep, broad, moderately narrowed at apical contriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.30X as long as wide; disc area flat; declivity at 75 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely rounded, subacute, somewhat produced; even-numbered intervals unevenly flattened; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish, each surrounded by scales of same colour as other scales; Intervals 3-5 on disc slightly sinuately-sided; disc weakly transversely angulately impressed across basal 1/3; antedeclivital callus of interval 3 lacking (though white maculae often appear raised); declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, shallow, narrow; punctures minute, scarcely evident, moderately elongate, narrow, shallow, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, dark brown, brown, and whitish; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.24X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, not deeper and narrowed apically, continued shallowly on sternum 2; apical margin not declivous; 1.33X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 medially impressed, impression broad, shallow; apical 2/5 declivous; 1.38X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; basally flat; median impression very shallow, broad, subtriangular; lateral impressions very shallow, large, subequal to median impression in depth; with cluster of three to four suberect, coarse apicolateral setae; 1.00X as long as 3 & 4 together, 0.72X as long as 2, 0.54X as long as 1. Legs moderately long. Femora clavate, reddish brown. Tibiae moderately slender, dark reddish; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, indistinct, minute, with few inconspicuous bristles; outer surface with short, inconspicuous bristles; uncus moderately long, moderately slender, as long as width of tibial apex. Tarsi moderately short, broad, reddish; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, broadly cordate, rather deeply emarginate (fig. 68); tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.85 mm.

Female. Same as male except: rostrum 0.97X as long as pronotum; very slightly depressed in apical 1/2; subquadrately expanded apically. Antennae inserted at apical 2/5. Sternum 1 with apical margin declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 114). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface membranous; more or less parallel-sided; extreme apex somewhat elongate, acute, explanate, in lateral view slender, declivous,

tapering; dorsobasal margin indistinct, shallowly emarginate; ventrobasal margin indistinct, with short basal plate extending between apodemes, visible from above. Orifice transverse, very short; proximal margin distinct, slightly sclerotized. Apodemes long, 1.05X as long as median lobe. Internal sac with orificial sclerites indistinct, acute, pale, poorly sclerotized; with numerous fine spicules. Tegmen with cap-piece. Female (fig. 187). Sternum VIII with apical setae numerous, long, conical; arms broad, parallel, with inner margins sinuate and outer margins broadly arcuate; fenestral area open, elongate-narrow. Apodemes broadly divergent near apex only; narrowly separated to near base. Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus more or less uniformly, slightly convex. Gonocoxae short, robust, tapering toward apex, apically sinuate. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin bluntly rounded. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - The maculae of whitish scales on the sides of elytra are more or less distinct. Size range 2.20-2.65 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous glabrirostris* could be confused with *B. punticollis* and *B. bagdatensis*. From the former it can be distinguished by the elytral impression usually lacking or only shallow and from *B. bagdatensis* by the pronotum narrower in respect to the elytra and with sides straighter. From both species it is also distinguished by the shorter and more quadrate elytra.

BIOLOGICAL NOTES - This species is probably polyphagous since usually it is collected on *Stratiodes aloides* L., but also is collected on *Ceratophyllum submersum* L.. Urban (1923) observed the larva eating the underwater leaves of S. aloides and the pupa in the stems where it rests for 5 days.

TYPE LOCALITY - Germany (without further detail).

NOTES ON TYPE SPECIMENS - In the Herbst collection (MNHB) we examined seven syntypes of the species and designated the first of the series labelled " *squalidus* m. / 54497 / *Bagous glabrirostris* Hbst., Dieckmann det., 1971 / *glabrirostris* Hbst., *lutulentus* Gyll. sec. Schilsky" as lectotype. The others are all labelled: "Hist. Coll. Nr. 54497, Germania" (two of which also state "recte").

RANGE - Europe, especially middle-european, Caucasus, Algeria.

MATERIAL EXAMINED - We examined about 230 specimens from Italy, Bosnia, Germany, Slovakia, Poland, Ukraine and Armenia.

30. *Bagous bagdatensis* Pic (figs. 18, 69, 115, 188)

Bagous bagdatensis Pic, 1904: 50. Holecová, 1993: 73.

Bagous wagneri Dieckmann, 1964b: 111 (not Hoffmann, 1954); 1972: 28; 1983: 371, 373. Lohse, 1983: 57. **(n. syn.)**

REDESCRIPTION - Same as *B. glabrirostris* except: rostrum with ventral margin not carinate. Frons shallowly impressed, indistinctly set off from rostrum by shallow impression. Pronotum with apical constriction moderately weak; with distinct sinuate transverse carina of basal margin in median 1/3; scales dark brownish black; ocular lobes dark reddish. Elytra with declivity at 60 degrees; moderately wider than pronotum; even-numbered intervals weakly convex to flat, odd-numbered intervals not more convex or elevated; antedeclivital swelling of interval 3 lacking; scales blackish and white. Tibiae reddish. Sternum 1 with median

impression interupted (basal and apical), not continued on sternum 2, convex in middle 1/2. Sternum 2 flattened. Tarsomere 3 slightly wider at apex than 2 (fig. 69). Genitalia. Male (fig. 115). Median lobe with extreme apex elongate, more or less triangular, subacute, narrowly rounded. Apodemes 1.26 x as long as median lobe. Internal sac with pair of blade-shaped sclerites.

Female (fig. 188). Sternum VIII with apical setae short, slender; arms divergent, basally fused, with inner margin more or less straight; fenestral area broad; apodemes markedly divergent near apex only, narrowly separated to basal 1/3. Spermatheca with nodulus more or less uniformly slightly convex. Gonocoxae arcuate. Tergum VIII narrowly reflexed, forming distinct lip. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - The maculae of pale scales on the elytra are more or less distinct. Size range 2.10-2.60 mm.

REMARKS AND COMPARATIVE NOTES - It can be confused only with *B. glabrirostris* with which it was compared in the key (also see the remarks of that species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Bagdad (Iraq).

NOTE ON TYPE SPECIMENS - In the Pic collection (MHNP) we examined one male syntype labelled "Bagdad / *bagdatensis* Pic / Type" (lectotype here designated).

SYNONYMIES - *Bagous wagneri* was described based on specimens from Sardinia (type locality: Oristano), Albania, Hungary and Caucasus, of which we examined two paratypes and many specimens subsequently checked by Dieckmann; we established their synonymy with *B. bagdatensis*. Also, however, the name by Dieckmann was not available since it was homonymous with *B. puncticollis wagneri* Hoffmann (see *B. puncticollis*).

RANGE - Italy (North to Latium, Sardinia), Crna Gora, Albania, Greece, Romania, Austria, Hungary, Turkey, Israel, Iraq, Iran and Caucasus.

MATERIAL EXAMINED - We studied 167 specimens from Italy, Albania, Greece, Romania, Turkey, Armenia and Iran.

Bagous binodulus group

This group is characterized by: glabrous, smooth and shining area over eyes and at base of interval 1; basal portion of pronotum broadly covered with plumose scales; sternum 5 with long setae, around apicomedian impression, more distinct and longer in male; median lobe with short basal plate extending between apodemes, visible from above and projecting acutely medially; internal sac with flat complex basal sclerite (fig. 121).

This group is composed of the Palearctic *B. binodulus* and probably of some Afrotropical species.

31. *Bagous binodulus* (Herbst) (figs. 21, 121, 192)

Curculio binodulus Herbst, 1795: 247.

Bagous binodulus (Herbst), Gyllenhal, 1836: 538; 1845: 75. Brisout, 1863: 501. Schilsky, 1907: 64. Sharp, 1917a: 29. Urban, 1923: 125. Hustache, 1930: 208, 231. Hoffmann, 1954: 724, 738. Dieckmann, 1964a: 92; 1983: 359, 363. Lohse, 1983: 49.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.88X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus deep, broad, long, coarsely punctate; ventral margin subangulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 1/2, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.52X as long as head across ocular lobes; scales nongranulate, contiguous, pitted, round, brownish; supraocular setae lacking. Frons broad, 0.62X as wide as head across eyes, somewhat flattened, not impressed, indistinctly set off from rostrum by shallow impression; median sulcus shallow, narrow, long.Antennae inserted at apical 1/3, scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle moderately long, 0.82X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.55X as long as funicle, reddish brown, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.88X as long as broad; very weakly expanding from base; apical constriction moderately weak, in apical 1/5, dorsally distinct and uniform; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus distinct, narrow, complete, of uniform depth and width or almost so; disc transversely weakly convex, weakly undulate, rugulose; apical and marginal setae few, scarcely evident, short, subrecumbent, curved, fine; area of plumose scales of basal declivity broad, convex, and distinct; scales nongranulate, pitted, subcontiguous, round, dark brownish black; with 3 vittae; median vitta narrow, complete, indefinite, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes strongly developed, dark reddish. Prosternal sulcus very deep, broad, weakly narrowed at apical constriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.55X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate, subacute, somewhat produced; basal margin costate and glabrous adjacent to scutellum; even-numbered intervals weakly convex to flat; odd-numbered intervals unevenly slightly more convex and elevated, with setae inconspicuous, very short, recumbent, curled, fine, pale whitish; intervals 3-5 on disc strongly sinuately-sided; disc weakly transversely angulately impressed across basal 1/3; antedeclivital callus of interval 3 strongly tuberculate; declivital callus of interval 5 very well-developed, subacute; calli of intervals 3 and 5 subequal in size; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately shallow, not wider than strial grooves; scales nongranulate, subcontiguous, finely pitted, round, arranged irregularly, brown, whitish and black; maculate; humeri with macula white; antedeclivital callus of interval 3 with macula lacking; declivital callus of interval 5 with macula small white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.22X as long as sternum 1. Sternum 1 with median impression deep, broad, continuous for entire length, deeper and not narrowed apically, not continued on sternum 2;

apical margin not declivous; 1.11X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 flattened; not apically declivous; 1.43X as long as 3 & 4 together. Sternum 5 with subapical median impression only; apicomedian and basal area flat; median impression very shallow, broad, subtriangular, with carinate margins in apical 1/2, lateral margin of impression with longitudinal row of several long erect coarse setae; with cluster of three to four suberect, coarse apicolateral setae; 1.07X as long as 3 & 4 together, 0.75X as long as 2, 0.60X as long as 1. Legs moderately short. Femora clavate, reddish black. Tibiae slender, dark reddish; inner margin weakly bisinuate, outer margin slightly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, indistinct, minute, with conspicuous short bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately slender, shorter than width of tibial apex. Tarsi moderately long, sublinear, dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, rather deeply emarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scalelike long setae. Length, pronotum and elytron: 4.30 mm.

Female. Same as male except: rostrum 0.80X as long as pronotum; moderately depressed in apical 1/2; subquadrately expanded apically. Antennae inserted at apical 2/5. Sternum 1 with median impression shallow, interrupted (basal and apical), flattened in middle 1/2, broader apically. Sternum 2 with apical 2/5 declivous. Sternum 5 with median impression without carinate margins.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 121). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; very slightly broader basally, tapering toward base; extreme apex somewhat elongate, subacute, narrowly rounded, slightly subapically constricted, explanate, in lateral view slender, evenly and moderately curved, tapering; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, with short basal plate extending between apodemes, visible from above and projecting acutely medially; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); proximal margin of pseudo-orifice distinct, arcuate; pseudo-orifice short, slightly enlarging apparent orifice. Orifice with proximal margin indistinct, not sclerotized. Apodemes long, 1.65X as long as median lobe. Internal sac with orificial sclerites indistinct, rounded, pale, poorly sclerotized; with pair of large, basally acute sclerites and with basal sclerite complex. Tegmen with cap-piece. Female (fig. 192). Sternum VIII with apical setae several, very short, slender; arms moderately broad, parallel, with inner margins more or less straight, with outer margins broadly arcuate; fenestral area open, broad. Apodemes strongly divergent near apex only; narrowly separated to near base. Spermatheca with ramus prominent, strongly extending past insertion of spermathecal duct, set off from body by marked emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, strongly convex. Gonocoxae short, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin bluntly rounded. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - The prominence of the elytral calli varies moderately and is usually more marked in the larger specimens. The elytral vestiture may be nearly unicolorous brown. Size range 4.50-5.20 mm.

REMARKS AND COMPARATIVE NOTES - Many external characters make the classification of *B.*

binodulus easy among the Palearctic species, especially the two prominent calli on each elytron which it shares only with species from other geographical regions. Moreover, the species is immediately distinguished by the characters distinctive to the group as listed above.

BIOLOGICAL NOTE - This is a monophagous species living only on *Stratiodes aloides* L., and has been observed mating on its flowers. The larvae live on the portions of the plant which are above water, eating the central veins of the leaves (Urban, 1923). The pupa was found in a niche in the leaves and pupation requires 5 days.

TYPE LOCALITY - Berlin (Germany).

NOTES ON TYPE SPECIMENS - In the Herbst collection (MNHB) we examined six specimens, one labelled "54472 / *binodulus* Schh. / Aus *Stratiotes aloides*, Berlin, Wahnschaffe / *binodulus* Herbst, Dieckmann det. 1982" (lectotype here designated) and the others "Hist. Coll. Nr. 54472, Berolin.".

RANGE - Northern and Central Europe, from Baltic Republics in the east to northwestern France in the west, with the southern limit in northern Italy.

MATERIAL EXAMINED - We studied 79 specimens from Poland, Germany and France.

Bagous affaber group

This group is characterized by: rostrum with median longitudinal carina; elytra with very large punctures; underside with large excavate punctures; median lobe ventrobasally deeply emarginate, subbasally notched in lateral view, with apex slender and acuminate in lateral view, with pair of elongate orificial sclerites and pair of slender suborificial sclerites in internal sac.

This group is represented by two Palearctic species, *B. affaber* and *B. latepunctatus* (both occurring also on the Indian subcontinent), *B. frontalis* O'Brien & Pajni (India), and others occurring in the Afrotropical region and not yet revised.

32. *Bagous affaber* Faust (figs. 22, 122, 193)

Bagous affaber Faust, 1887: 85. Schilsky, 1907: 61.
Bagous dilgiri Vazirani, 1977: 42. O'Brien & Askevold, 1995: 61.

REDESCRIPTION - Male. Body medium-sized, moderately short-oval, moderately robust. Rostrum moderately short, 0.77X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; median basal carina moderately strong; basolateral sulcus shallow, narrow, short, coarsely punctate; ventral margin not angulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, contiguous to imbricate, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.53X as long as head across ocular lobes; scales subgranulate, contiguous, pitted, round, brownish; supraocular setae few, long, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.67X as wide as head across eyes, weakly convex, not impressed, indistinctly set off from rostrum by shallow impression; not sulcate nor foveate medially. Antennae inserted at middle, scape short, moderately stout, clavate; scape and funicle reddish; funicle moderately long, 0.89X as long as scape, segment 1 stout, 2 slender,

1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.67X as long as funicle, reddish, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum transverse, 0.83X as long as broad; moderately expanding from base; apical constriction moderate, in apical 1/5, dorsally shallower medially; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely moderately convex, rugulose; apical and marginal setae numerous; scales granulate and rugulose, pitted, contiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, indefinite, straight, pale tan; lateral vitta broad, pale tan; ocular lobes weakly developed, reddish brown. Prosternal sulcus moderately deep, moderately broad, weakly narrowed at apical constriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.40X as long as wide; disc area moderately convex; declivity at 45 degrees (in relation to dorsal plane); markedly wider than pronotum; apices nonacuminate, conjointly slightly emarginate; humeri well-developed, obliquely angulate, non acute, somewhat produced; even-numbered intervals moderately convex; odd-numbered intervals slightly more convex and elevated, with setae inconspicuous, short, recumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 weakly-developed, but evident; declivital callus of interval 5 very well-developed, acute; calli of intervals 3 and 5 unequal in size; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, moderately deep, narrow; punctures very large, round, broad, deep, wider than strial grooves; scales subgranulate, contiguous to imbricate, not pitted to finely pitted, round to oval, arranged irregularly, brown, and grayish white; fasciate-maculate; antedeclivital callus of interval 3 with macula grayish white; declivital callus of interval 5 with macula grayish white; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Abdominal sterna with punctures large, meso and metasternum with punctures very large, forming broad concavities. Metasternum 1.27X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, not deeper and slightly narrowed apically, shallowly continued on sternum 2; apical margin moderately declivous; 1.11X as long as 2; suture between 1 & 2 sinuate, fused. Sternum 2 impressed; apically weakly declivous; 1.38X as long as 3 & 4 together. Sternum 5 with median impression, basally transversely convex; impression shallow; with cluster of three to four suberect, coarse apicolateral setae; 0.93X as long as 3 & 4 together, 0.58X as long as 2, 0.47X as long as 1. Legs moderately long. Femora subclavate, paler reddish. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, indistinct, minute, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex; hind tibiae with 2 small denticles. Tarsi moderately long, sublinear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 slightly wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with pair of bristles. Length, pronotum and elytron: 2.05 mm.

Female. Same as male except: rostrum 0.82X as long as pronotum. Sternum 1 with median impression very shallow. Sternum 2 convex.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 122). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; widest at orifice, tapering toward apex and base; extreme apex somewhat elongate, broadly and uniformly rounded, distinctly subapically constricted, angulately explanate, in lateral view slender, markedly curved, acute; dorsobasal margin distinct, truncate; ventrobasal margin distinct, deeply emarginate; venter subbasally slightly but distinctly notched and excavate (lateral aspect). Orifice triangular, elongate; proximal margin distinct, markedly sclerotized. Apodemes moderately short, 0.34X as long as median lobe. Internal sac with orificial sclerites distinct, acute, basally somewhat more heavily sclerotized; with pair of slender convergent, slightly arcuate sclerites. Tegmen with cap-piece. Female (fig. 193). Sternum VIII with apical setae numerous, short, robust; arms arcuate, apically convergent, with inner margins broadly, moderately arcuate, with outer margins broadly arcuate; fenestral area open, oval. Apodemes moderately divergent near apex only, contiguous to base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly convex. Gonocoxae short, robust, broadest at apex. Bursa copulatrix simple, without sclerites. Tergum VIII more or less quadrate; apical margin medially slightly truncate. Pygidium with apex broadly, deeply emarginate.

INTRASPECIFIC VARIATION - The light whitish grey to pale tan scales are more or less numerous and sometimes scarcely distinguishable from the darker scales if the latter are light brown. Size range 2.05-2.60 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. latepunctatus* (see key to the species for the distinctive characters). Due to the large and deep punctures of the elytral striae and the shape of the pronotum, widest at the apical third, this species can be superficially confused with *B. limosus* from which it differs easily especially in its smaller size (2.05-2.60 mm vs. 2.45-3.30 mm), the more pronounced declivital callus of interval 5, the large punctures of the venter and the rugulose sculpture of the pronotum.

BIOLOGICAL NOTE - This species has been reared from stems and turions of *Hydrilla verticillata* (L. F.) Royle on the Indian Subcontinent. In the same region it has been also reared from *Najas guadelupensis* (Spreng.) Magnus and *Nymphoides* sp. and has been taken feeding on *Potamogeton* sp. at night (O'Brien & Askevold, 1995).

TYPE LOCALITY - Syria (without further detail).

NOTE ON TYPE SPECIMENS - In the Faust collection (SMTD) we examined two syntypes (one male and one female) on the same pin labelled "Syria, Müller / *affaber* Faust / Coll. J. Faust, Ankauf 1900 / type" (we designated the male as lectotype) and one female syntype labelled "Syria, Dohrn / *affaber* Faust / Coll. J. Faust, Ankauf 1900 / type".

SYNONYMIES - The synonymy of *B. dilgiri* from India with *B. affaber* was recently established by O'Brien & Askevold (1995).

RANGE - Syria, Pakistan, Bangladesh, and India.

MATERIAL EXAMINED - Apart from the type specimens (see above) more than 1,350 nontype specimens, mainly from the Indian Subcontinent (see O'Brien & Askevold, 1995 for complete data) and only 3 from the Palearctic region. Syria: Syria (1, MNHB; 1, MSNM); Hungary ?: Ungarn / 110 St. / Coll. Stierlin / Schilsky revided (1, DEIE).

33. *Bagous latepunctatus* Pic (fig. 123)

Bagous latepunctatus Pic, 1904: 50. O'Brien & Askevold, 1995: 65.

REDESCRIPTION - Same as *B. affaber* except: elytra with antedeclivital swelling of interval 3 weakly developed, scarcely evident; declivital callus of interval 5 moderately well-developed; striae with punctures large. Genitalia. Median lobe very slightly broader basally, tapering toward apex, not subapically constricted (fig. 123).

INTRASPECIFIC VARIATION - The specimens from Pakistan and India differ from the lectotype (a fresh specimen lacking waterproof coating) in the opaque nonmetallic vestiture, the declivital callus of interval 5 weaker and the punctures of striae and abdomen slightly smaller. Size range 1.95-2.40 mm.

REMARKS AND COMPARATIVE NOTES - The lectotype was the only Palearctic specimen of *B. latepunctatus* which we examined. However we assigned to this species many specimens from Pakistan and India although slightly differing in some characters as reported above. Only the examination of other specimens from Iraq will allow us to establish whether our present position is right. The species is easily distinguishable from other Palearctic species, except for the closely related *B. affaber* from which it can be separated by the few characters reported in the key and the distinctive shape of the male genitalia.

BIOLOGICAL NOTE - On the Indian Subcontinent this species has been reared from *Hydrilla verticillata* (L. F.) Royle and *Najas guadelupensis* (Spreng.) Magnus. It has been taken feeding on *Potamogeton* sp. and was swept from submersed *Myriophyllum* sp. Numerous adults, presumed to be overwintering, were taken from topsoil and others have been collected at light and at UV light as well (O'Brien & Askevold, 1995).

TYPE LOCALITY - Bagdad (Iraq).

NOTE ON TYPE SPECIMENS - This species was described from specimens collected at Bagdad, of which we examined one male (MHNP, Pic collection) labelled "Bagdad / sp. près *biimpressus* / *latepunctatus* Pic / type" (lectotype here designated).

RANGE - Iraq, Pakistan, Burma, India, and Sri Lanka.

MATERIAL EXAMINED - Apart from the type specimen (see above) 801 nontype specimens from the Indian Subcontinent (see O'Brien & Askevold, 1995 for complete data).

Bagous tempestivus group

This group is characterized by: rostrum distinctly sexually dimorphic, in male subrectangular robust and shorter, in female subcylindrical slender and more elongate (figs. 57-58); elytra elongate, distinctly wider than pronotum; elytral vestiture tessellate with distinct fascia in front of declivity; tibiae long, lacking denticles and with short bristles; tarsi long, sublinear (figs. 73-75); median lobe long with very short distinctly convergent apodemes, dorsal basal margin very slightly emarginate, ventral basal margin markedly emarginate, with pair of moveable elongate sclerotized plates covering orifice and with median short prominence only visible when plates are opened (figs. 124-125).

Presently this group is composed of three very closely related Palearctic species, which are distinguishable only in the slightly different shape of tarsomere 3 and/or the shape of the median lobe.

34. **Bagous macedon** n. sp. (figs. 23, 75, 124, 194)

DESCRIPTION - Male (holotype). Body medium-sized, elongate- subcylindrical, moderately slender. Rostrum moderately short, 0.70X as long as pronotum, black, subrectangular; dorsal curvature moderate and even; ventral curvature nearly straight; not more distinctly depressed toward apex; basolateral sulcus lacking; ventral margin subangulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, subgranulate, contiguous, pitted, round, whitish yellow. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.50X as long as head across ocular lobes; scales subgranulate, contiguous, pitted, round, gray-brown and white; supraocular setae few, short, distinct, suberect, curved, coarse, linearly arranged. Frons very broad, 0.66X as wide as head across eyes, weakly convex, shallowly impressed, indistinctly set off from rostrum by shallow impression; median sulcus shallow, moderately broad, short. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle long, 1.12X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.58X as long as funicle, reddish brown, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.85X as long as broad; unevenly, weakly rounded, weakly expanding from base; apical constriction moderate, in apical 1/5, dorsally distinct and uniform; sides moderately rounded behind constriction, slightly impressed behind round area; median sulcus indistinct, narrow, complete, of uniform depth and width or almost so; disc transversely moderately convex, weakly rugulose; apical and marginal setae moderate in number, scarcely evident, short, subrecumbent, curved, fine; scales subgranulate, finely pitted to not pitted, contiguous, round, blackish brown; with 3 vittae; median vitta very narrow, complete, indefinite, uneven, whitish; lateral vitta moderately broad, whitish; indistinct whitish brown maculae on disc; ocular lobes strongly developed, reddish brown. Prosternal sulcus deep, broad, moderately narrowed at apical contriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum small. Elytra gradually expanding behind humeri to declivity; 1.75X as long as wide across humeri; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, obliquely angulate, subacute, somewhat produced; even-numbered intervals weakly convex to flat; odd-numbered intervals unevenly slightly more convex and elevated, broader than even intervals, with setae conspicuous, short. subrecumbent, curled, fine, pale; intervals 3-5 on disc strongly sinuately-sided; disc weakly transversely angulately impressed across basal 1/3; antedeclivital swelling of interval 3 lacking (though white maculae often appear raised); declivital callus of interval 5 well-developed, subacute; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown and pale tan; fasciate-maculate; humeri with macula pale whitish brown; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula lacking; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.12X as long as sternum 1. Sternum 1 almost entirely flat; apical margin

weakly declivous; 1.28X as long as 2; suture between 1 & 2 bisinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.73X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; with pair of small subapical tubercles; lateral impressions very shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.13X as long as 3 & 4 together, 0.65X as long as 2, 0.47X as long as 1. Legs moderately long. Femora clavate, reddish brown. Tibiae moderately slender, reddish; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with several moderately short bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately stout, subequal to width of tibial apex. Tarsi long, linear, dark reddish; tarsomeres 1-3 of uniform width toward apex; tarsomere 3 not wider at apex than 2, linear, subemarginate (fig. 75); tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse, scale-like, long setae. Length, pronotum and elytron: 2.80 mm.

Female (allotype). Same as male except: rostrum 0.75X as long as pronotum; dorsal curvature uneven; ventral curvature weak and even, flattened in apical 1/2. Antennae inserted at middle. Sternum 1 with median impression lacking. Sternum 5 with basal area strongly transversely convex. Length, pronotum and elytra: 3.05 mm.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 124). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; markedly broadest basally, constricted behind orifice, enlarging toward base; extreme apex elongate, more or less triangular, subacute, narrowly rounded, in lateral view robust, evenly and moderately curved, tapering; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin distinct, deeply emarginate. Orifice triangular, elongate; proximal margin concealed by articulated sclerite. Apodemes very short, curving strongly inward, 0.10X as long as median lobe. Internal sac without sclerites. Tegmen with cap-piece. Female (fig. 194). Sternum VIII with apical setae numerous, short, slender; arms broad, parallel, with inner margins more or less straight, with outer margins broadly arcuate; fenestral area open, elongate-narrow. Apodemes moderately divergent near apex only, narrowly separated to ca midlength. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, tapering toward base. Bursa copulatrix simple, without sclerites. Tergum VIII more or less quadrate; apical margin broadly truncate, very slightly reflexed but not forming distinct lip. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - Apart from the sexual dimorphism, we did not observe noteworthy differences between the specimens of the type series.

ETYMOLOGICAL NOTE - The name of the species is a masculine substantive referring to an inhabitant of the type locality.

REMARKS AND COMPARATIVE NOTES - This species differs from the closely related *B. tempestivus* and *B. czwalinai* by the narrower and longer tarsi and the median lobe distinctly different in shape. Moreover *B. macedon* is distinguished from *B. tempestivus* by the pronotum, being distinctly narrower than the elytra and from *B. czwalinai* by tarsomere 3, being

of the same shape and width as tarsomere 2, and the less elongate and gradually broadened elytra.

BIOLOGICAL NOTES - No data are available.

TYPE LOCALITY - Vardar Plane (Macedonia, Greece).

NOTES ON TYPE SPECIMENS - Holotype (MSNM): [Greece] "Pian. Vardar, Macedonia, Coll. Schatzmayr"; allotype (MSNM) and two paratypes (MSNM, RCCM): [Greece]: Vardarbene, Salonich, A. Schatzmayr / *Bagous tempestivus* Hbst., Neresh. & Wagn. det.".

RANGE - Macedonia (Greece).

MATERIAL EXAMINED - We examined only the four type specimens (see above).

35. *Bagous czwalinai* Seidlitz (figs. 73, 125)

Bagous czwalinai Seidlitz, 1891: 616. Hansen, 1917: 357 (*zwalinae* err.). Dieckmann, 1964a: 94, 104; 1983: 360, 369. Osella, 1966: 392. Lohse, 1983: 54. Tempère & Péricart, 1989: 170.

Bagous tempestivus var. *heasleri* Newbery, 1902: 149. Hustache, 1930: 208, 228. Hoffmann, 1954: 725. Dieckmann, 1964: 104.

Probagous heasleri (Newbery), Sharp, 1917b: 101.

REDESCRIPTION - Same as *B. macedon* except: body broadly elongate-subcylindrical. Elytra 1.65X as long as wide, with declivital callus of interval 5 weakly developed; scales brown, whitish and black. Sternum 1 with median impression basal only, broad, not continued on sternum 2. Tarsi sublinear; tarsomere 3 moderately widened toward apex, subcordate (fig. 73). Genitalia. Median lobe more or less parallel-sided; apex not elongate, broadly and uniformly rounded; orifice more or less oval, short (fig. 125).

INTRASPECIFIC VARIATION - Frons with sulcus moderately variable in depth and width, declivital callus of interval 5 more or less prominent, elytra more or less tranversely impressed in the basal 1/3 with elytral intervals more or less convex. Size range 2.60-3.20 mm.

REMARKS AND COMPARATIVE NOTES - This species may be confused with *B. tempestivus* and *B. macedon*, with the former of which it also shares the shape of the median lobe. From both it differs mainly by the shape of the tarsomere 3 which is subcordate and slightly but distinctly wider than tarsomere 2 (see also key to the species).

BIOLOGICAL NOTE - The host plant is unknown. Osella (1966) wrote of collecting the species on *Polygonum persicaria* L. near a stream.

TYPE LOCALITY - Dammhof, Konigsberg (Poland).

NOTE ON TYPE SPECIMENS - In the Seidlitz collection (ZSSM) we examined one female labelled "Dammhof / Sammlung v. Seidlitz / *Bagous czwalinai* Seidl. / Dieckmann det. 1963" which we designate as lectotype.

SYNONYMIES - The synonymy of *B. tempestivus heasleri* from England (New Forest) with *B. czwalinai* was already established by Dieckmann (1964).

RANGE - Europe from Sweden in the North to northern Italy (Romagna) in the South, from Slovakia at East to northwestern Italy (Piedmont) in the West.

MATERIAL EXAMINED - We studied 48 specimens from Sweden, Poland, Germany, Slovakia, Austria and Italy,

36. *Bagous tempestivus* (Herbst) (figs. 24, 57-58, 74)

Curculio tempestivus Herbst, 1795: 246.
Bagous tempestivus (Herbst, 1795), Gyllenhal, 1836: 546. Brisout, 1863: 507. Schilsky, 1907: 71. Sharp, 1917b: 103 (as *cnemerythrus*). Hustache, 1930: 208, 228. Hoffmann, 1931: 70; 1954: 725, 735. Dieckmann, 1964a: 94, 104; 1983: 360, 369. Lohse, 1983: 54.
Bagous convexicollis Boheman, 1845: 84. Brisout, 1863: 507.
Bagous adspersus Förster, 1849: 34. Brisout, 1863: 504.
Bagous tessellatus Förster, 1849: 34. Brisout, 1863: 507.
Bagous dilatatus Thomson, 1868: 342. Schilsky, 1907: 71 (*ampliatus* err.). Sharp, 1917: 102.
Bagous angustulus Thomson, 1870: 139.
Bagous sjobergi Bruce, 1968: 238. Dieckmann, 1972: 25.
Bagous thomsoni Bruce, 1968: 238. Dieckmann, 1972. 25.

REDESCRIPTION - Same as *B. macedon* except: body slender. Rostrum (fig. 57) with ventral curvature weak. Pronotum moderately expanded from base; median sulcus distinct. Elytra subparallel behind humeri to declivity; gray, grayish brown and grayish white; humeri and declivital callus of interval 5 with grayish white macula. Sternum 1 with median impression basal only, broad, not continued on sternum 2. Tarsomere 3 slightly widened toward apex, sublinear (fig. 74).

Female. Rostrum (fig. 58) cylindrical; subparallel; very slightly depressed in apical 1/2. Genitalia. Median lobe more or less parallel-sided; apex not elongate, broadly and uniformly rounded; orifice more or less oval, short (same as in *B. czwalinai*, fig. 125).

INTRASPECIFIC VARIATION - The predominant pale scales of the dorsum vary in colour from whitish grey to pale brown and the darker scales from pale tan to brown, the latter forming more or less distinct maculae. The humeri and the antedeclivital portion of interval 3 and sometimes also intervals 1 and 2 are covered with more or less distinctly white scales. The sides of the pronotum are more or less rounded and the longitudinal median sulcus on the pronotum varies distinctly in depth and width as does the fovea on the frons. The odd-numbered intervals of the elytra can be slightly to distinctly more convex than the even-numbered intervals, with the declivital callus of interval 5 varying from rounded to acute to tuberculose. Size range 2.20-3.20 mm.

REMARKS AND COMPARATIVE NOTES - This is surely one of the most variable of the Palearctic species and the high variability also is present within the same population. For differences from the closely related *B. czwalinai* and *B. macedon* see remarks of these species and the key.

BIOLOGICAL NOTE - This species lives in watery and moist places on *Ranunculus* spp. The larva was collected on *R. repens* on which it pierces the stems. Hoffmann (1954) cited the species as collected on *Potamogeton* species (*P. lucens* L., *P. natans* L., *P. crispus* L.) and the larva as parasitized by *Microctonus aethiops* Nees (Braconidae).

TYPE LOCALITY - Germany (without further details).

NOTES ON TYPE SPECIMENS - In the Herbst collection (MNHB) we examined six syntypes: one female already dissected but without the internal portions and labelled "Germania / *tenuis* N., Brunov / 54496 / Type / *tempestivus* Hbst. Schh." (lectotype here designated), one female labelled " *tempestivus* / Germania" and two males and two females labelled "Germania".

SYNONYMIES - We examined one female syntype of *B. convexicollis* (NHRS) labelled "Type

/ *Bagous*, Saxon. mont., German." (lectotype here designated); five syntypes of *B. dilatatus* (MZUL), one male and one female on the same pin and labelled "Lund / Type" (we designated the male as lectotype) and one male and two females labelled "Lund / *dilatatus*, Paratypus"; four syntypes of *B. angustulus* (MZUL) all labelled "L - a" and one also "Coll. Thoms." (we designated this specimen as lectotype) and the type series of *B. thomsoni* (five specimens, type locality: Lund, Sweden) and *B. sjobergi* (two specimens, type locality: Ljusdal, Sweden) all preserved at MZUL. We confirm the synonymy of all these species with *B. tempestivus*. The syntypes of *B. adspersus* and *B. tesselatus* (type locality: Germany) were problably lost; however we follow the previous opinion of several authors and consider these species as synonyms of *B. tempestivus* as well.

RANGE - Europe, especially in the northern, central and southeastern countries, Siberia, Anatolia.

MATERIAL EXAMINED - We studied about 350 specimens from Sweden, Estonia, Poland, Germany, France, Hungary, Czech Rep., Slovakia, Austria, Bosnia, Bulgaria, Turkey and Georgia.

Bagous exilis group

This species group is characterized by: very small size; frons broad; short, subrectangular elytra with greatly shortened caudal prolongation and lacking declivital callosity, scales of elytral intervals nearly arranged in rows of regular pairs; tibiae with apices only slightly arcuate, lacking denticles; tarsi short, with tarsomere 3 subquadrate and as wide as tarsomere 2 (fig. 80); median lobe compressed, dorsoventrally flattened, with apodemes moderately long; internal sac with V-shaped sclerites (fig. 126).

This group is presently composed of only three western Palearctic species and apparently shares several characters with the extra-Palearctic *B. pygmaeus* group (very small size, short elytra with absence of caudal prolongation, shape of tibiae and tarsi). However, it differs in the frons broad, the humeri not prominent, the internal sac of the median lobe with sclerites, and the apodemes shorter (only *B. joyi* O'Brien from India has similar short apodemes).

37. *Bagous exilis* Jacquelin du Val (figs. 25, 59, 126, 195)

Bagous exilis Jacquelin du Val, 1854: 64, note 2. Brisout, 1863: 498. Schilsky, 1907: 59 (as *perparvulus*). Hustache, 1930: 208, 219. Hoffmann, 1954: 724, 727.

REDESCRIPTION - Male. Body small, broad-oval, moderately robust. Rostrum moderately long, 0.97X as long as pronotum, reddish brown, subcylindrical (fig. 59); dorsal curvature weak and uneven; ventral curvature nearly straight; subangulate at antennal insertion; basolateral sulcus lacking; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.43X as long as head across ocular lobes; scales subgranulate, contiguous, pitted and not pitted, round, gray brown; supraocular setae few, long, distinct, suberect, curved, slender, linearly arranged. Frons very broad, 0.75X as wide as head across eyes, moderately convex, not impressed, not set off from rostrum by impression; not sulcate nor foveate medially. Antennae inserted just behind middle, scape

moderately short, moderately slender, subclavate; scape and funicle reddish brown; funicle moderately short, 0.87X as long as scape, segment 1 stout, 2 slender and shorter than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club elongate-oval, 0.60X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.85X as long as broad; rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely moderately convex, weakly rugulose; apical and marginal setae few, scarcely evident, short, subrecumbent, curved, coarse; scales granulate, finely pitted to not pitted, contiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, indefinite, uneven, pale grayish; lateral vitta moderately broad, pale grayish; ocular lobes weakly developed, reddish brown. Prosternal sulcus moderately deep, moderately broad, strongly narrowed at apical constriction, not angulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum minute. Elytra gradually narrowing behind humeri to declivity; 1.30X as long as wide; disc area strongly convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae conspicuous, short, suberect, straight, fine, pale; confluence of intervals 3 and 9 not swollen; strial grooves distinct, shallow, narrow; punctures minute, scarcely evident, round, narrow, moderately shallow, slightly wider than strial grooves; scales subgranulate, contiguous, finely pitted to not pitted, round, brown, and grayish white; maculate; cuticle brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.16X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.46X as long as 2; suture between 1 & 2 straight, uniformly deep. Sternum 2 convex; apically declivous; 1.57X as long as 3 & 4 together. Sternum 5 flat; with cluster of three to four suberect, coarse apicolateral setae; 1.07X as long as 3 & 4 together, 0.68X as long as 2, 0.47X as long as 1. Legs moderately short. Femora clavate, reddish brown. Tibiae moderately stout, reddish; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with several moderately short bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately stout, shorter than width of tibial apex. Tarsi short, sublinear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scalelike long setae. Length, pronotum and elytron: 1.45 mm.

Female. Same as male except: rostrum 1.00X as long as pronotum; dorsal curvature moderate; flattened in apical 1/2. Antennae inserted at basal 2/5. Sternum 1 with median impression lacking.

Genitalia and associated structures - Male (fig. 126). Median lobe strongly compressed, dorsoventrally flattened; dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided, tapering toward apex; extreme apex elongate, apical margin broadly and uniformly rounded, explanate, in lateral view slender,

evenly and moderately curved, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; venter subbasally slightly but distinctly notched and excavate (lateral aspect). Orifice triangular, elongate; proximal margin distinct, slightly sclerotized. Apodemes moderately short, 0.30X as long as median lobe. Internal sac with orificial sclerites indistinct, subacute, pale, poorly sclerotized; with reversed V-shaped sclerite. Tegmen with cap-piece.

Female (fig. 195). Sternum VIII with apical setae numerous, short, slender; arms slender, parallel, with inner margins more or less straight, with outer margins straight; fenestral area open, oval. Apodemes indistinguishably fused with arms; narrowly separated to ca midlength. Spermatheca with ramus prominent, strongly extending past insertion of spermathecal duct, set off from body by marked emargination; spermathecal gland arising at apex of ramus; nodulus strongly convex, produced. Gonocoxae short, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin bluntly rounded. Pygidium with apex bluntly rounded.

INTRASPECIFIC VARIATION - The vestiture can be nearly unicolorous, greyish to brown. The rostrum can be slightly curved to straight in the apical 2/3. Size range 1.30-1.70 mm.

REMARKS AND COMPARATIVE NOTES - Due to the very small size, the species should be confused only with the very closely related *B. minutissimus* and *B. fuentei* (see key and remarks of these species).

BIOLOGICAL NOTE - According to Hoffmann (1954) the adult lives on *Frankenia laevis* L. and was also collected on *Suaeda fruticosa* Forsk. and *Camphorosma monspeliaca* L. in salty soil.

TYPE LOCALITY - Montpellier (France).

NOTE ON TYPE SPECIMENS - Under the name *exilis* in the Jacquelin du Val collection (MHNP) we examined one specimen bearing the unique label "type" (lectotype here designated).

RANGE - Southern France, southern part of the Iberian Peninsula, Morocco, Canary Islands. The last locality is an unpublished and remarkable citation since *B. exilis* is the first species of the genus collected on these islands.

MATERIAL EXAMINED - Apart from the type specimen (see above) 52 nontype specimens. France: Bouches du Rhône, Albaron, 24.IV.1957, leg. Tempère (2, RCCM); Bouches du Rhône, Bd. de Valcares, on *Frankenia laevis*, 17.V.1957 (1, UJIZ); Bouches du Rhône, La Camargue (3, SMTD); Camargue, VI.1936 (1, CWOB); Camargue, Var, V.1937, R. Berard (1, CWOB); Camargue, L. Puel (2, MNHB; 4, UJIZ; 3, MSNM; 5, MMCT; 4, SMTD); Etànge de Vaccarès, 16.V.1957, leg. Péricart (3, FTCF). Portugal: Portogallo, Kaufmann (1, HNHM); Portogallo, Faro, V.1905, radici di *Limoniastrum monopetalum* (3, MSNM). Spain: Spagna, Alicante, Salinas, 1.V.1988, leg. Sprick (1, PSCH); Salinas de Bujoraloz, 12.VI.1994, leg. Meregalli & Borovec (1, RBCH); Canary Islands: Tenerife, Los Abrigos, 10.IX.1927 (1, MCNM); Tenerife, Medano V.1927 (14, MCNM). Morocco: Casablanca, IV.1921, Antoine (1, MHNP); Ain-Diat, Alcaza, 3.IV.1933, ...(illegible) / pr. Casablanca (1, MHNP).

38. *Bagous minutissimus* Faust (fig. 60)

Bagous minutissimus Faust, 1887: 84.

REDESCRIPTION - Same as *B. exilis* except: rostrum moderately short, 0.84X as long as pronotum; dorsal curvature strong and uneven; ventral curvature weak and uneven (fig. 60).

Elytra with declivity at 60 degrees. Female. Rostrum with dorsal curvature strong and even; ventral curvature moderate and even.

INTRASPECIFIC VARIATION - The elytral vestiture can be nearly unicolorous whitish grey to greyish brown. The rostrum in the female can be more or less angulate at the lateral insertion. Size range 1.40-1.80 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. exilis*, with which it was synonymized by Schilsky (1907) erroneously under *B. perparvulus*. We believe that the small differences in the external morphology observed by us (see key to the species) permit the separation of the two taxa. However, because of their allopatry *B. minutissimus* might represent only an eastern subspecies of *B. exilis*.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Sarepta (southern Russia).

NOTE ON TYPE SPECIMENS - In the Faust collection (SMTD) we examined one syntype male labelled "Sarepta, Faust / *minutiss*. Faust / Type" (lectotype here designated).

RANGE - Greece, southern Russia, Azerbajdzan, Kazakhstan.

MATERIAL EXAMINED - Apart from the type specimen (see above) 16 nontype specimens. Greece: Grecia (1, MNHB); Attica, Reitter (1, MNHB; 1, HNHM); Attica, Reitter / Coll. Reitter (1, CWOB); Kelecsényi, Grecia (2, MHNP). Azerbajdzan: Azerbaijan, Apsheron peninsula, Dirshachi vill., 22.V.1987, leg. Davidian (2, IZSP); Dagestan, Biryuchek, 25.VI.1960 (1, BMNH); Dagestan, Nowyj Birjusjak b. Kisljar, 12.VII.1961, leg. Worobjew (3, MNHB); Steppe Circkizlar, Ciscaucasie (2, IZSP). Kazakhstan: W. Kazakhstan, Dzhanatau, Novo-Karalinsk, 14.VIII.1938, leg. Lukjanovitch (2, IZSP).

39. *Bagous fuentei* Pic (figs. 80, 196)

Bagous fuentei Pic:, 1908, 81.

REDESCRIPTION - Male. Body small, broad-oval, moderately robust. Rostrum short, 0.67X as long as pronotum, dark reddish, broadly subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral sulcus lacking; ventral margin not angulate, not carinate; sides unevenly subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, subrugose, subcontiguous, pitted and not pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.40X as long as head across ocular lobes; scales subgranulate to subrugose, contiguous, not pitted, round, gray brown; supraocular setae few, long, distinct, suberect, curved, slender, linearly arranged. Frons very broad, 0.79X as wide as head across eyes, somewhat flattened, not impressed, not set off from rostrum by impression; median fovea shallow, large. Antennae inserted just in front of middle; scape moderately short, moderately slender, clavate; scape and funicle reddish brown; funicle moderately short, 0.84X as long as scape, segment 1 stout, 2 slender and shorter than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club elongate-oval, 0.58X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.93X as long as broad; weakly rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides weakly rounded behind constriction, slightly impressed behind

round area; median sulcus distinct, broad, incomplete, forming apical impression; disc transversely moderately convex, weakly rugulose; apical and marginal setae few, scarcely evident, short, subrecumbent, curved, coarse; scales subgranulate, finely pitted to not pitted, subcontiguous, round, brownish; with 3 vittae; median vitta narrow, complete, distinct, uneven, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish brown. Prosternal sulcus moderately deep, moderately broad, moderately narrowed at apical contriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra gradually narrowing behind humeri to declivity, 1.37X as long as wide; disc area strongly convex; declivity at 75 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, short, subrecumbent, curled, fine, pale; intervals 3-5 on disc slightly sinuately-sided; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures medium-sized, round, narrow, deep, slightly wider than strial grooves; scales rugulose, contiguous, not pitted, round, brown, and grayish white; maculate; cuticle reddish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.06X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.58X as long as 2; suture between 1 & 2 straight, uniformly deep. Sternum 2 convex; apically declivous; 1.78X as long as 3 & 4 together. Sternum 5 flat; with cluster of three to four suberect, coarse apicolateral setae; 1.11X as long as 3 & 4 together, 0.62X as long as 2, 0.46X as long as 1. Legs moderately short. Femora clavate, reddish. Tibiae moderately stout, reddish; inner margin weakly bisinuate, outer margin slightly arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with several moderately short bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately stout, shorter than width of tibial apex. Tarsi short, sublinear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, subcordate, subemarginate (fig. 80); tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 1.65 mm.

Female. Same as male except: rostrum 0.67X as long as pronotum. Antennae inserted just behind middle.

GENITALIA AND ASSOCIATED STRUCTURES - Same as *B. exilis* except: female sternum VIII with arms with inner and outer margins broadly arcuate. Gonocoxae short, robust (fig. 196).

INTRASPECIFIC VARIATION - Apart from the sexual differences, the type series is generally uniform. Size range 1.30-1.70 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous fuentei* is an apparently rare and poorly known species since no author discussed it after its original description. It is distinguished from *B. exilis*, which shares the male genitalia, by the subquadrate vs. subglobose pronotum, with a dorsal incomplete longitudinal median sulcus, and the distinctly shorter and scarcely sexually dimorphic rostrum.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Pozuelo (southern Spain).

NOTE ON TYPE SPECIMENS - We examined seven syntypes: two females (Pic collection, MHNP) on the same pin labelled "Pozuelo, Fuente / *B. fuentei* mihi, près *pallidipes* " (we designated the specimen above as lectotype) and two males and three females labelled "Pozuelo de C., La Fuente / *B. fuentei* Pic" (MCNM). It should be noted that *pallidipes* is a name in litteris and that we examined one specimen of *B. septemcostatus* labelled "Brumana / type / *B. pallidipes* Pic" in the Pic collection (MHNP).

RANGE - Known only from the type locality in southern Spain.

MATERIAL EXAMINED - Apart from the type specimens (see above) 12 nontype specimens. Spain: Pozuelo de Calatrava, de la Fuente (1, MCNM; 11, MHNP).

Bagous subruber group

This group is characterized by: rostrum short, subrectangular; pronotum nearly as wide as long; elytra distinctly wider than pronotum (figs. 26-27); vestiture of odd-numbered elytral intervals tessellate; tibiae elongate but with outer margin nearly straight and inner margin not denticulate; tarsomeres short, nearly as long as wide and all of same width (figs. 81-82); median lobe laterally membranous and dorsally with two overlapping poorly sclerotized pairs of plates covering orifice; dorsobasal and ventrobasal margin deeply emarginate and not sclerotized medially; internal sac with apical complex sclerites (figs. 127-128).

Presently only three western Palearctic species compose the group. Although the unique synapomorphies are in the features of the median lobe, these species have a characteristic habitus (shape of pronotum, elytra, legs and elytral vestiture) which allows their certain recognition.

40. *Bagous septemcostatus* Chevrolat (figs. 27, 82, 127, 198)

Bagous septemcostatus Chevrolat, 1860: 509. Brisout, 1863: 515. Hustache, 1927: 126, 131.
Bagous subcostulatus Desbrochers, 1896: 98 (**n. syn.**).

REDESCRIPTION - Male. Body small, moderately broad-oval, moderately robust. Rostrum short, 0.70X as long as pronotum, black with apex reddish brown, broadly subrectangular; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral sulcus lacking; ventral margin not angulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, subrugose, subcontiguous, pitted to not pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye moderate; eyes weakly convex, small, 0.43X as long as head across ocular lobes; scales granulate to subrugose, contiguous, not pitted, round, gray brown; supraocular setae few, long, distinct, suberect, curved, slender, linearly arranged. Frons very broad, 0.79X as wide as head across eyes, somewhat flattened, indefinitely shallowly impressed, not set off from rostrum by impression; median fovea shallow, large. Antennae inserted just in front of middle, scape moderately short, moderately slender, clavate; scape and funicle dark reddish; funicle moderately long, 0.91X as long as scape, segment 1 stout, 2 slender and shorter than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club elongate-oval, 0.75X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.96X as long as broad; sinuately subparallel-sided; apical

constriction moderate, in apical 1/4, dorsally distinct and uniform; sides weakly rounded behind constriction, deeply impressed behind round area; median sulcus lacking; disc transversely moderately convex, rugulose; intervals between punctures narrow, more or less convex; apical and marginal setae few, scarcely evident, short, subrecumbent, curved, fine; scales coarsely granulate, pitted, contiguous, round, blackish brown; with 3 vittae; median vitta narrow, complete, distinct, uneven, pale tan; lateral vitta moderately broad, pale tan; ocular lobes strongly developed, reddish brown. Prosternal sulcus moderately deep, moderately narrow, moderately narrowed at apical contriction, moderately biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum large. Elytra subparallel behind humeri to declivity; 1.45X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); markedly wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, weakly obliquely angulate; even numbered intervals weakly convex to flat; odd-numbered intervals more convex and elevated, with setae conspicuous, short, subrecumbent, curled, fine, pale; intervals 3-5 on disc slightly sinuately-sided; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures medium-sized, round, narrow, deep, slightly wider than strial grooves; scales granulate, contiguous, not pitted, round, arranged irregularly, brown, whitish and black; maculate; cuticle black and reddish brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.19X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.22X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 flattened; apically weakly declivous; 2.00X as long as 3 & 4 together. Sternum 5 flat; with cluster of three to four suberect, coarse apicolateral setae; 1.17X as long as 3 & 4 together, 0.58X as long as 2, 0.49X as long as 1. Legs moderately short. Femora clavate, reddish. Tibiae moderately stout, reddish; inner margin weakly bisinuate, outer margin slightly arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with several moderately short bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately stout, shorter than width of tibial apex. Tarsi short, sublinear, dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, slightly longer than wide, sublinear, subemarginate (fig. 82); tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.00 mm.

Female. Same as male except: rostrum 0.72X as long as pronotum, subcylindrical; dorsal curvature strong and uneven; flattened in apical 1/2, subparallel. Antennae inserted just behind middle. Sternum 2 convex.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 127). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; asymmetrical toward apex; more or less parallel-sided; extreme apex elongate, subacute, narrowly rounded, in lateral view slender, evenly and moderately curved, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal margin indistinct, deeply emarginate. Orifice more or less oval, short. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.15X as long as median lobe. Internal sac with orificial sclerites lacking; with very large sclerite complex. Female (fig. 198). Sternum VIII with apical setae numerous, short, slender; arms

slender, divergent, with inner margins more or less straight, with outer margins straight; fenestral area open, triangular. Apodemes strongly divergent from ca midlength, narrowly separated to near base. Spermatheca with ramus prominent, strongly extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, slightly convex. Gonocoxae short, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII more or less quadrate; apical margin broadly truncate. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - The pale whitish to yellowish maculae can be more or less joined especially on the second 1/4 of intervals 5 and 6 and on the antedeclivital portion of intervals 2, 3 and 4, and sometimes these two large maculae can be joined between them. The sides of the pronotum vary from subparallel to divergent from the base with the widest point at the apical 1/3. Size range 1.40-2.00 mm.

REMARKS AND COMPARATIVE NOTES - For the differences separating this species from the very closely related *B. aliciae*, see the key and remarks of that species.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Alger (Algeria).

NOTE ON TYPE SPECIMENS - This species was described based on two specimens given by the collector, M. Poupillier, to Chevrolat and possibly examined also by Brisout (1863). One of these specimens subsequently was given as a present by Chevrolat to Tournier (Tournier, 1874). Unfortunately these specimens are found presently neither in the Chevrolat (NHRS) nor in the Tournier (MHNP) collections. However, in the Tournier collection ((MHNG) we examined one specimen collected in Turkey and classified with this name by Tournier corresponding to the sense of the species adopted by Hustache (1927). It is very difficult to establish whether this specimen corresponds to the original description, because this description is somewhat different from that by Brisout (1863), who apparently re-examined the type specimens. It differs in the length of the specimens and in the shape of the rostrum, pronotum and tarsi. Both of the descriptions also can be suitable for some species of the *B. chevrolati* group. Therefore, we decided to follow the opinion of Tournier and Hustache with the hope of finding the type specimens of the species in the future.

SYNONYMIES - *Bagous* sub*costulatus* was described based on specimens from Spain without detailed locality. In the Desbrochers collection (MHNP) under this name we examined one female syntype labelled "Espagne" corresponding well to the original description (lectotype here designated). This corresponds to the species named by Hustache (1927) as *B. septemcostatus*.

RANGE - Southern Spain, North Africa, Middle East, Anatolia.

MATERIAL EXAMINED - Apart from the type specimen of *B.* sub*costulatus* (see above) 55 nontype specimens. Gibraltar: Gibraltar, J. J. Walker (1, BMNH). Morocco: Casablanca, Maroc, V.1922, Antoine (2, MHNP); Rio Muluya, Melilla, XI.1908, Arias (1, MCNM); Marocco, Mogador, XII.1906, Escalera (1, MCNM); Tanger, Escalera (1, MCNM). Tunisia: T. Le Kef, XI.1935, Normand (1, MSNM). Algeria: Aïn-Adjel, Dr. Martin (1, MHNP); Aïn el Golea, Djelfa, 18.V.1920 (1, MHNP); Relizane, 28.IV.1910 (1, MHNP); Taguin, 1893, de Vauloger (1, MHNP); Teniet (Hènon) (6, MHNP); Teniet el Haad, Algérie (3, MHNP; 1,

MSNM; 1, UJIZ). Libya: Tripolitania, Homs, VII.1913, Andreini (2, MSNG); Tripolitania, Misurata, XI.1913, leg. Andreini (24, MSNG; 2, MSNM); Tripoli, 30.III.1926, Schatzmayr (1, MSNM). Israel: Israel, 1-7.III.1968, S. Bleszynski (1, USNM). Turkey: Brumana (1, MHNP); Mersina (1, MHNP); Salonia, Turquie (1, MHNG).

41. *Bagous aliciae* Cmoluch

Bagous aliciae Cmoluch, 1983: 51.
Bagous gandalf Isajev & Gratshev, 1994: 318 (**n. syn.**).

REDESCRIPTION - Same as *B. septemcostatus* except: rostrum with dorsal curvature strong and uneven. Elytra 1.40X as long as wide.

INTRASPECIFIC VARIATION - The pronotum may be widest at the middle or at the apical 1/3. The odd-numbered elytral intervals may be more or less distinctly convex than the even-numbered intervals. Size range 1.70-1.90 mm.

REMARKS AND COMPARATIVE NOTES - We studied four specimens of *B. aliciae*, part of a large series collected in Poland by Szypula who compared them with the types. The taxonomic value of *B. aliciae* as a distinct species is doubtful, since the differences from *B. septemcostatus* are very few and consist only of the rostrum with dorsal curvature angulated at the antennal insertion and the elytra slightly shorter. Therefore, because of the allopatry with *B. septemcostatus*, *B. aliciae* may be a northern subspecies of this species but also it may be only a synonym since a distribution from North Africa to North Europe is not uncommon in species of the genus.

BIOLOGICAL NOTE - Szypula (pers. comm. 1995) collected adult and larva of this species on *Anthemis tinctoria* L. in Poland, while the type specimens of *B. gandalf* result to be collected on *Anthemis subtinctoria* Dobrocz.

TYPE LOCALITY - Opoka Duza, Annopol, Bez. Tarnobrzeg (Poland).

NOTE ON TYPE SPECIMENS - This species was described based on three specimens which we did not examine.

SYNONYMIES - We examined two paratypes (IZSP) of *B. gandalf* recently described by Isajev & Gratshev labelled "Uljanovskaja O. Inzienskshir. Palatova, leg. Isajev". They are identical to the Polish specimens of *B. aliciae*.

RANGE - Poland, Ukraine, Russia.

MATERIAL EXAMINED - Apart from the type specimens, 5 nontype specimens. Poland: E. Poland, Katy II, Zamosc, Wieprzecka Gora, 31.V.1994, leg. Szypula (4, RCCM); Russia: Russia, Papadjino-Plahino Mih., Vjazma river, Lebedeva leg., 15.V.1913 (1. IZSP).

42. *Bagous subruber* Reitter (figs. 26, 81, 128, 197)

Bagous subruber Reitter, 1890: 161. Schilsky, 1907: 69. Hustache, 1927: 126, 131.
Bagous tournieri Pic, 1894: 247; 1928: 19.

REDESCRIPTION - Male. Same as *B. septemcostatus* except: body broad-oval. Antennae dark brown. Pronotum with intervals between punctures large, distinctly granulose. Elytra 1.32X as long as wide. Tarsomere 3 nearly as wide as long (fig. 81). Genitalia. Male (fig. 128). Median lobe symmetrical; extreme apex not elongate, broadly and uniformly rounded, in lateral view robust, narrowly rounded. Orifice elongate. Apodemes 0.20X as long as median lobe.

Female (fig. 197). Apodemes broadly divergent near apex only, narrowly separated to basal 1/3. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct. Tergum VIII transverse.

INTRASPECIFIC VARIATION - The dark scales vary from blackish brown to pale brown and the pale scales from greyish to pale tan. The maculae on the elytra are more or less confusedly arranged and joined especially at the sides in the middle third. Size range 1.75-2.10 mm.

REMARKS AND COMPARATIVE NOTES - This species is related closely to *B. septemcostatus* from which sometimes it is distinguishable only with difficulty. However, it usually differs by its shorter elytra, longer pronotum with the intervals between the dorsal punctures distinctly granulate, its shorter tarsomere 3 and the darker antennae. Also it is similar to *B. fuentei* which lacks the swelling beside the eye and has shorter and more convex elytra, lacking a small declivital callus on interval 5, and shorter tarsi.

BIOLOGICAL NOTE - Meregalli and Borovec (pers. comm., 1994) collected the species at Bajaroloz sifting salty soil under *Arthrocnemum* sp. Also Sprick (pers. comm., 1996) collected this species in salty soil under *Frankenia pulverulenta* L.

TYPE LOCALITY - Volo (Tessalia, Greece).

NOTE ON TYPE SPECIMENS - This species was described based on specimens collected at Volo by Stussiner in 1884, of which we examined two syntypes (Reitter collection, HNHM) without designating a lectotype.

SYNONYMIES - *Bagous tournieri* was described based on specimens from Biskra and El Kreider (Algeria) of which we examined one male labelled "Biskra / *Bagous* n. sp. ? / type / *Tournieri* Pic / Type" (Pic collection, MHNP; lectotype here designated) and one male and one female labelled "Le Nat. n 184 (94) p. 247 / Le Kreider / type" (Pic collection, MHNP). We confirm its synonymy with *B. subruber* as proposed by Hustache (1927).

RANGE - Southern Spain, Greece, Cyprus, North Africa from Tunisia to Egypt, Saudi Arabia, Middle East, Iraq, Iran.

MATERIAL EXAMINED - Apart from the type specimens (see above) 127 nontype specimens. Spain: Spagna, Almeria Cabo de Gata - Rambla, Morales, 26.VI.1986, Meregalli (3, MMCT; 1, OVCK); Espagne (Zaragoza), salines de Bujaraloz, 8-9.VI.1990, Magnien, Matocq, Péricart (2, JPCM); Salinaz de Bujaraloz, 12.VI.1994, leg. Meregalli & Borovec (4, MMCT; 3, RBCN; 2, RCCM). Greece: Griechland, Attika (1, SMTD); Attica / Reitter det. (1, CWOB); Attica, Reitter (2, HNHM; 11, MNHB; 6, MSNM; 2, SMTD); Atene, Grecia (5, MSNM); Leonis, Athen (1, BMNH; 1, HNHM; 4, MSNM; 1, UJIZ); Candia, Kreta, Holtz (1, ZSSM). Cyprus: Larnaka, Larnaka salt lake, 20.IV.1995, leg. Sprick (1, PSCH). Tunisia: Nefta, Tunisie, 26.IV.1927 (lumiere), Dumont (1, MHNP). Algeria: Algérie, ex Stauding (1, MHNP); Alger (5, USNM); Biskra (1, HNHM; 3, MHNP; 2, MNHB; 8, MSNM); Biskra, 1898, Vaulog. (5, SMTD; 5, ZSSM); Biskra, Vauloger / Coll. Reitter (1, CWOB); Algérie, Doucen (1, CWOB; 5, MHNP; 2, UJIZ; 4, ZSSM); l'Alma, 22.IV.1909 (1, MHNP); Le Kreider (2, MHNP). Egypt: Egitto, Dekeihla, 5.IV.1933, C. Koch (2, MSNM). Saudi Arabia: Hofuf, 19.IV.1977, Saudi Arabien, leg. W. Büttiker (1, NHMB); Hofuf, 16.IV.1978, Saudi Arabia, leg. A. S. Talhouk (1, NHMB); Qatif, 11-15.IV.1983, Saudi Arabia, leg. C. Holzschuh (1, NHMB). Israel: Palestine, Wadi Ghuzze, N. Scott (10, BMNH). Iraq: Bagdad, IV.1936, leg. Frey (1, UJIZ; 1, ZSSM); Irak, Basra, 1.IV.1936 (1, ZSSM); SW Irak O v.

Rutba, Kasy & Vartian (1, HNHM). Iran: Iran, Ahvaz, 16-20.IV.1978, at light, leg. Eastop (1, BMNH); S. Iran, 7 km W Kahkom, 27-28.V.1973 (1, JFCH); SW Iran, Mollasani, 45 km NW Ahvaz, 13-14.IV.1977 (2, JFCH); SW Iran, Siahmakan Elil, 17-18.IV.1977 (6, JFCH).

Bagous dieckmanni group

This group is characterized by: body large; pronotum rugulose, strongly sulcated longitudinally in the middle; elytral scales shining; median lobe with apex distinctly sagittate; internal sac with orificial U-shaped sclerite (fig. 129).

Presently we are not familiar with any other species that could be assigned to the group apart from *B. dieckmanni*.

43. *Bagous dieckmanni* Gratshev (figs. 28, 83, 129, 202)

Bagous dieckmanni Gratshev, 1993: 11.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.83X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin weakly subangulate, not carinate; sides subparallel, moderately subquadrately expanded in apical 1/2; scales dense in basal 2/3, not granulate, subcontiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes flat, medium-sized, 0.45X as long as head across ocular lobes; scales nongranulate, subcontiguous, pitted, round, brownish black, and brown; supraocular setae few, short, indistinct, recumbent, curved, slender, linearly arranged. Frons broad, 0.66X as wide as head across eyes, weakly convex, shallowly impressed, not set off from rostrum by impression; median fovea moderately deep, small. Antennae inserted just behind apical 1/3; scape moderately long, moderately slender, subclavate; scape and funicle reddish; funicle moderately short, 0.87X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.57X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.92X as long as broad; weakly expanding from base; apical constriction moderate, in apical 1/6, dorsally shallower medially; sides moderately rounded behind constriction, slightly impressed behind round area; median sulcus distinct, narrow, complete; disc transversely weakly convex, weakly undulate, rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, coarse; scales subgranulate, pitted, subcontiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, indefinite, uneven, pale grayish; lateral vitta moderately broad, pale grayish; ocular lobes moderately developed, dark reddish. Prosternal sulcus moderately shallow, broad, weakly narrowed at apical constriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.44X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short.

subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 lacking; declivital callus of interval 5 very weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; humeri with macula pale whitish brown; antedeclivital area of interval 3 with macula lacking; declivital callus of interval 5 with macula greyish white; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.21 as long as sternum 1. Sternum 1 with median impression deep, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin moderately declivous; 1.03X as long as 2; suture between 1 & 2 sinuate, broadly finely incised medially, deep laterally. Sternum 2 convex; apical 2/5 declivous; 2.17X as long as 3 & 4 together. Sternum 5 weakly convex, lacking evident impressions; apicomedian area flat; basally transversely convex; with cluster of three to four suberect, coarse apicolateral setae; 2.50X as long as 3 & 4 together, 1.15X as long as 2, 0.70X as long as 1. Legs moderately long. Femora subclavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices slightly narrowed; inner surface with denticles numerous, distinct, small, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex. Tarsi moderately long, sublinear, dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subtruncate (fig. 83); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.75 mm.

Female. Same as male except: rostrum 0.85X as long as pronotum; very slightly depressed in apical 1/2, expanded toward apex. Antennae inserted at apical 2/5. Sternum 1 with median impression shallow, moderately narrow, interrupted (basal and apical), flattened in middle 1/2. Sternum 5 with median subapical and pair of subbasal lateral impressions; apicomedian and basal area transversely convex; median impression moderately deep, broad, subtriangular; lateral impression moderately deep, large; subequal to median impression in depth.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 129). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; widest at orifice, slightly constricted behind orifice, parallel-sided to base; extreme apex elongate, more or less triangular, subacute, narrowly rounded, distinctly subapically constricted, angulately explanate, sagittate, in lateral view slender, evenly and moderately curved, narrowly rounded; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin indistinct. Orifice more or less oval; proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward and with extreme apex sinuate, 0.11X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Tegmen with cap-piece. Female (fig. 202). Sternum VIII with apical setae numerous, short, slender; arms slender, parallel, basally fused, not apically fused, with inner margins broadly,

shallowly arcuate, with outer margins broadly arcuate; fenestral area open, oval. Apodemes broadly divergent near apex only, narrowly separated to near base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly flat. Gonocoxae long, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin broadly rounded. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - The sculpture of the pronotum is more or less rugulose. Size range 4.50-5.10 mm.

REMARKS AND COMPARATIVE NOTES - Among the western Palearctic species, *B. dieckmanni* can be confused only with *B. frit* due to the deep longitudinal median sulcus on the pronotum (see remarks of this latter species). However, it could be confused externally with at least two Chinese species (*B. sulcicollis* Hartmann and *B. foersteri* Hartmann) not yet revised, but these have markedly different median lobes

BIOLOGICAL NOTES - No data are available.

TYPE LOCALITY - Kolovertnoe, Ural river (western Kazakhstan).

NOTE ON TYPE SPECIMENS - This species was described based on specimens from western and central Kazakhstan and Russia. We examined the holotype and one male paratype both labelled "W. Kazakhstan, Ural Riv., Kolovertnoe, 26.6.1950, V. Belyaeva leg." (PIMR).

RANGE - Russia, Hungary, Slovakia.

MATERIAL EXAMINED - Apart from the type specimens (see above) 4 nontypes specimens. Russia: Rostov region, 25 km W. st. Oblivskaya, 10-20.V.1984, Cherezova leg. (1, IZSP); Sarepta, v. Bodemeyer (1, HNHM). Slovakia: Slovakia mer., Kamenica n. Mn., 14.V.1979, R. Borovec lgt. (1, RBCN). Hungary: Ungheria (1, MSNM).

Bagous biimpressus group

This species group is characterized by: antennal funicular segment 7 moderately transverse, with pubescence as sparse as other segments, distinctly separated from club; antennal club with basal segment elongate and glabrous, other segments shortened and distinctly pubescent; prosternal sulcus scarcely developed, especially in its basal 1/2, which is more elevated than apical 1/2; median lobe with orificial sclerite complex with median setal brush (lacking in *B. petro*); female pygidium with apex broadly blunted, forming flat, thickened, arcuate margin.

This group is presently composed of three Palearctic species.

44. *Bagous petro* (Herbst) (figs. 29, 134, 199)

Curculio petro Herbst, 1795:366.

Bagous petro (Herbst), Schönherr, 1845: 77 (*petrosus* err.). Schilsky, 1907: 49. Reitter, 1916: 210. Hansen, 1918: 135, 138. Hustache, 1930: 207, 215. Hoffmann, 1954: 717, 720. Dieckmann, 1964: 91; 1983: 355, 377. Lohse, 1983: 48.

Bagous chorinaeus Fahraeus, 1845: 78.

Elmidomorphus aubei Cussac, 1851: 206. Sharp, 1917b: 108.

Bagous aubei (Cussac), Brisout, 1863: 508. Thomson, 1865: 180.

REDESCRIPTION - Male. Body medium-sized, short, broad-oval, robust. Rostrum short, 0.64X as long as pronotum, black, broadly subcylindrical; dorsal curvature strong and even; ventral curvature straight; not more distinctly depressed toward apex; ventral margin weakly subangulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.47X as long as head across ocular lobes; scales granulate, contiguous, finely pitted and not pitted, round, brownish; supraocular setae lacking. Frons broad, 0.67X as wide as head across eyes, weakly convex, not impressed, not set off from rostrum by impression; median fovea shallow, large. Antennae inserted just in front of middle; scape short, moderately stout, clavate; scape and funicle reddish; funicle long, 1.40X as long as scape, with segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-7 short and moderately transverse; club oval, 0.50X as long as funicle, dark reddish. Pronotum transverse, 0.73X as long as broad; strongly expanding from base; apical constriction moderate, in apical 1/5; sides strongly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely moderately convex, wealky rugulose; apical and marginal setae moderate in number, scarcely evident, short, recumbent to subrecumbent, curved, coarse; scales subgranulate, finely pitted to indistinctly pitted, contiguous, round, pale tan; lacking vittae; ocular lobes strongly developed, reddish black. Prosternal sulcus moderately shallow, broad, weakly narrowed at apical constriction, not angulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra gradually expanding behind humeri to declivity; 1.20X as long as wide; disc area strongly convex; declivity at 75 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, weakly obliquely angulate; even-numbered intervals moderately convex; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, very short, recumbent, curled, coarse, pale; intervals 3-5 on disc slightly sinuately-sided; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, deep, narrow; punctures large, round, broad, deep to well separated, wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brownish; immaculate; cuticle black. Metathoracic wing fully developed. Mesosternal process small, subtriangular between coxae. Metasternum 0.83X as long as sternum 1. Sternum 1 with median impression moderately deep, moderately narrow, continuous for entire length, deeper apically and slightly narrowed apically, not continued on sternum 2; apical margin moderately declivous; 1.41X as long as 2; suture between 1 & 2 straight, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 2.45X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions only; apicomedian and basal area flat; lateral impression shallow, large; with one pair of suberect, coarse apicolateral setae; 2.02X as long as 3 & 4 together, 0.85X as long as 2, 0.60X as long as 1. Legs moderately long. Femora subclavate, black with basal half reddish brown. Tibiae moderately slender, reddish; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with long evident setae; uncus moderately short, moderately stout, shorter than width of tibial apex. Tarsi moderately long, sublinear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, truncate; tarsomeres ventrally each with several long, apicolateral

bristles, dorsally with several very long apical bristles. Length, pronotum and elytron: 2.00 mm.

Female. Same as male except: rostrum 0.71X as long as pronotum; dorsal curvature moderate. Antennae inserted at middle. Sternum 1 with median impression shallow, broad, interrupted (basal and apical), flattened in middle 1/2.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 134). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided; extreme apex not elongate, broadly and uniformly rounded, explanate, in lateral view slender, declivous, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal margin indistinct, sightly emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice with proximal margin distinct, not sclerotized. Apodemes tapering, very short, curving strongly inward and with extreme apex sinuate, 0.13X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Tegmen with cap-piece. Female (fig. 199). Sternum VIII with apical setae several, short, slender; arms broad, apically convergent, basally fused, with inner margins broadly, shallowly arcuate, with outer margins broadly arcuate; fenestral area open, oval. Apodemes broadly divergent near apex only; contiguous to base. Spermatheca with ramus indistinct, extending slightly past insertion of spermathecal duct, set off from body by marked emargination; spermathecal gland arising at apex of ramus; nodulus irregularly wrinkled. Gonocoxae short, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin bluntly rounded, narrowly reflexed, forming distinct lip; apicolaterally slightly swollen; lateral margins slightly inflexed ventrolaterally.

INTRASPECIFIC VARIATION - The dorsal vestiture varies in colour from brown to greyish. In many specimens the basal 2/3 of the pronotum is yellowish grey and the central portion of apical 1/3 is brown. Size range 2.00-2.60 mm.

REMARKS AND COMPARATIVE NOTES - This species is characterized mainly by the short and globose elytra, which it shares only with *B. diglyptus*, *B. brevipennis* and *B. meregallii*. However, the antennal club with segment 1 glabrous and elongate is distinctive.

BIOLOGICAL NOTES - *Bagous petro* is found mainly at the borders of pools, where it can stay underwater for a long time, coming to the surface only toward the evening on warm and sultry days. It lives on several species of *Utricularia*, especially *U. vulgaris* L., although it may live also on aquatic plants of other genera. In fact in the laboratory the species also eats *Ceratophyllum submersum* L. and *Elodea canadensis* Rich..

TYPE LOCALITY - Germany (without further detail).

NOTE ON TYPE SPECIMENS - At MNHB we examined one syntype (male?) lacking abdomen and labelled "Berol.?, Schüppel / Type / Curc. *Petro*... (illegible) / 54491 / *Petro* Herbst = *aubei* Cussac" (lectotype here designated).

SYNONYMIES - We did not find syntypes of both *B. chorinaeus* (type locality: Paris, France) and *Elmidomorphus aubei* (type locality: Lille, France), but believe that their synonymy with *B. petro* is certain.

RANGE - Northern and Central Europe, rare in western (France) and southern Europe (northern Italy, Macedonia).

MATERIAL EXAMINED - We examined 25 nontype specimens from Sweden, Poland, Germany, France and Macedonia.

45. *Bagous biimpressus* Fahraeus (figs. 30, 133, 201)

Bagous biimpressus Fahraeus, 1845: 78. Brisout, 1863: 499. Schilsky, 1907: 50. Hustache, 1927: 125, 129; 1930: 207, 213. Hoffmann, 1954: 717, 719. Dieckmann, 1964: 91. Tempère & Péricart, 1989: 166.

Bagous frater Jacquelin du Val, 1854: 64, note 1. Brisout, 1863: 500.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.84X as long as pronotum, reddish black, subcylindrical; dorsal curvature moderate and uneven; ventral curvature weak and even; not more distinctly depressed toward apex; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, pitted and not pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.47X as long as head across ocular lobes; scales subgranulate, contiguous, finely pitted and not pitted, round, whitish gray; supraocular setae lacking. Frons broad, 0.68X as wide as head across eyes, somewhat flattened, shallowly impressed, indistinctly set off from rostrum by shallow impression; not sulcate nor foveate medially. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle long, 1.02X as long as scape, segment 1 stout; 2 slender, 1 and 2 subequal in length, 3 slightly longer than wide, 4-6 subquadrate, 7 moderately transverse; club oval, 0.58X as long as funicle, black. Pronotum transverse, 0.83X as long as broad; strongly expanding from base; apical constriction moderate, in apical 1/5, dorsally shallower medially; sides strongly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae moderate in number, scarcely evident, short, recumbent to subrecumbent, curved, coarse; scales granulate, finely pitted to indistinctly pitted, subcontiguous to non-contiguous, round, pale tan; with 3 vittae; median vitta moderately broad, interrupted, indefinite, uneven, pale grayish; lateral vitta broad, pale grayish; ocular lobes strongly developed, reddish black. Prosternal sulcus shallow, moderately broad, weakly narrowed at apical constriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.47X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri well-developed, weakly obliquely angulate; even-numbered intervals moderately convex; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, moderately long, recumbent, curled, coarse, pale; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, deep, narrow; punctures medium-sized, round, broad, deep to well separated, wider than strial grooves; scales subgranulate, subcontiguous, finely pitted, round, arranged irregularly, gray, grayish brown, and grayish white; maculate; cuticle reddish. Metathoracic wing fully developed. Mesosternal process small, triangular, very narrow between coxae. Metasternum 1.16X as long as sternum 1. Sternum 1 with median impression

moderately shallow, broad, continuous for entire length, deeper and slightly narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.46X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.53X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; apicomedian and basal area flat; median impression moderately shallow, narrow, subtriangular; lateral impression moderately shallow, large, subequal to median impression in depth; with one pair of suberect, coarse apicolateral setae; 1.24X as long as 3 & 4 together, 0.73X as long as 2, 0.48X as long as 1. Legs moderately long. Femora subclavate, black with basal half reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with long evident setae; uncus moderately long, moderately slender, subequal to width of tibial apex. Tarsi moderately long, sublinear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, truncate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with several very long apical bristles. Length, pronotum and elytron: 2.65 mm.

Female. Same as male except: rostrum 0.88X as long as pronotum; not evidently expanded apically. Antennae inserted just behind middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 133). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided; extreme apex elongate, subtruncate, very broadly subacute, distinctly subapically constricted, explanate, in lateral view slender, declivous, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal margin indistinct, slightly emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice with proximal margin distinct, not sclerotized. Apodemes very short, curving strongly inward, 0.12X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Tegmen with cap-piece. Female (fig. 201). Sternum VIII with apical setae numerous, long, slender; arms broad, apically convergent, with inner margins more or less straight, with outer margins broadly arcuate; fenestral area open, broad. Apodemes strongly divergent from ca midlength; narrowly separated to ca midlength. Spermatheca with ramus indistinct, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus irregularly wrinkled. Gonocoxae short, slender, broader in apical 1/2. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin broadly rounded.

INTRASPECIFIC VARIATION - Sometimes elytral intervals 3 and 4 are more distinctly convex than others. The vestiture also can be unicolorous, whitish grey to pale brown. The color of the femora and tibiae varies from reddish to brown. Size range 2.20-2.65 mm.

REMARKS AND COMPARATIVE NOTES - The species is closely related to *B. perparvulus* (see key to the species) with which it lives in several localities. It can be confused with *B. limosus* due to the shape of the pronotum, which is widest in the basal third, and the deep and large punctures of the striae. However, the pubescence of the club with segment 1 glabrous easily differentiates *B. biimpressus*.

BIOLOGICAL NOTE - This species is probably halophilic, since it is found in salt grounds. Its host species is unknown.

TYPE LOCALITY - Pisa (Italy).

NOTES ON TYPE SPECIMENS - At NHRS we examined one syntype labelled "Typus / Etrur: Pisa, Schüpp." (lectotype here designated).

SYNONYMIES - *Bagous frater* was described based on specimens from Montpellier (France), and four without label were examined by us in the Jacquelin du Val collection (MHNP). We designated a male as lectotype and confirmed its synonymy with *B. biimpressus*.

RANGE - South Europe (western and soutern France, northern and central Italy, Greece), Anatolia, Algeria, Caucasus, Turkmenistan.

MATERIAL EXAMINED - Apart from the type specimens (see above) we examined 41 nontype specimens. France: Gallia, Hyères (1, MNHB); Hyères, Bonnaire (1, BMNH; 3, MSNM); Aiguesmortes, E. Tisson (1, MNHB). Italy: Emilia, T. Borsini, V.1907, A. Fiori (1, MNHB); Emilia, Sala Bolognese, Chiesa (1, GOCA); Molise, Zittola (Is), Montenero v., 1-17.VI.90, Fiordigigli-Osella (4, GOCA). Greece: Pianura del Vardar, Macedonia, Schatzmayr (2, MSNM); Corfu, Paganetti (1, MSNM); Corfu, J. Sahlberg (1, MNHB); Korfu, Valianiti, V.1964, leg. Th. Palm (14, MMCT); Korfu, Korission, V.1964, leg. Th. Palm (3, MMCT); Zante, Kalamaki, 1909, leg. M. Hilf (1, MNHB). Turkey: Ceyhan, VI.1937, leg. Vasvari (2, HNHM). Algeria: Le Kreider (1, MHNP); Ouarsenis (2, MHNP); Philippeville, Algérie, A. Thery (1, MHNP).

46. *Bagous perparvulus* Rosenhauer (fig. 132)

Bagous perparvulus Rosenhauer, 1856: 291. Brisout, 1863: 523. Schilsky, 1907: 59.
Bagous mulsanti Fauvel, 1885: 302. Schilsky, 1907: 48. Hustache, 1927: 125, 130; 1930: 207, 215. Hoffmann, 1954: 717, 720. (**n. syn.**)
Bagous minutus Mulsant, 1859 (not Hochhut, 1847): 35. Brisout, 1863: 500. (**n. syn.**)

REDESCRIPTION - Same as *B. biimpressus* except: pronotum with sides behind round area not impressed, prosternal sulcus moderately shallow. Elytra with humeri obliquely angulate; even-numbered intervals weakly convex to flat; confluence of interval 3 and 9 distinctly swollen; strial grooves shallow; punctures minute, scarcely evident, narrow, shallow, not wider than strial grooves. Tibiae reddish. Genitalia. Median lobe slightly subapically constricted; extreme apex in lateral view markedly curved; dorsobasal margin shallowly emarginate (fig. 132).

INTRASPECIFIC VARIATION - The vestiture is sometimes unicolorous, whitish grey to pale brown. The colour of the femora and tibiae varies from reddish to brown. Size range 2.20-2.60 mm.

REMARKS AND COMPARATIVE NOTES - This species is very closely related to *B. biimpressus* from which it differs mainly by the distinctly narrower punctures of the elytral striae and the shape of the median lobe.

BIOLOGICAL NOTE - This species also is probably halophilic as is *B. biimpressus*, together with which it is often collected on salt grounds. Its host species is unknown.

TYPE LOCALITY - Puerto Santa Maria (Andalusia, Spain).

NOTES ON TYPE SPECIMENS - In the Oberthur collection (MHNP) we examined one male syntype of this species labelled "Thiere Andalusiens, Rosenhauer" exactly corresponding to the original description (lectotype here designated). We did not find other type specimens of *B. perparvulus* which has been described from many specimens. Schilsky (1907) referred to having examined specimens collected by Rosenhauer in the type locality and to considering the species as synonymous with *B. minutissimus* Faust. His interpretation is erroneous and refers to *B. exilis*.

SYNONYMIES - The name "*mulsanti*" was proposed by Fauvel (1885) in substitution of "*minutus*", name used by Mulsant (1859) for a species of *Bagous* from southern France (Aigues-Mortes) but already occupied by *B. minutus* Hochhut, 1847. There are no differences between the holotype of *B. perparvulus* and the specimens traditionally checked as *B. mulsanti*.

RANGE - Southern Europe (Spain, western and southern France, Corsica, Central Italy, Sardinia, Sicily, Greece), Anatolia, Algeria.

MATERIAL EXAMINED - Apart from the type specimens (see above) 55 nontype specimens. Italy: Toscana, Grosseto, Paludi Trappola, 14-16.VII.1965, leg. Binaghi (5, MSNG); Sicilia, Siracusa, Pantano di Vendicari, 24.V.1985, leg. Sabella (2, GOCA); Sardegna, Cagliari, Stagno di Chia, 25.IV.1977, leg. Meloni (1, GOCA); ditto, 14.V.1995, leg. Angelini (6, FAFC, RCMC); Sardinia, Marinella, G. C. C. (1, BMNH). France: Hyères, 1868 (1, MNHB); Marais Hyères, III.-1953, leg. Ochs (1, MSNM); Palavas, Herault, leg. H. Lavagne (6, MHNP); Perols, Herault, IV.1918, leg. J. Lichtenstein (1, UJIZ); Vaccarés étang (1, CWOB); Valcares, Camargue, 31.VIII.1904, leg. L. Puel (1, MHNP); Corsica, Aleria, 1905 (1, MNHB). Spain: Andalusien (1, MHNP); Aranjuez, Hisp c., leg. H. Franz (1, MSNM); Burgas, V.1894, leg. Flach (3, MNHB; 3, MSNM; 1, UJIZ). Greece: Corfu, leg. J. Sahlberg (1, MNHB); Corfu, Paganetti (2, MSNM); Corfu, Kalichiop. (3, HNHM; 8, MSNM). Turkey: Elmali, Antaya, Bey-Daglari, VII.1973, M. & G. Osella (1, GOCA). Algeria: Kenata, V.1901, de Vauloger (1, MHNP); La Seyboux Bône, III-1914, R. de Borde (2, MHNP); Taguin, V.1895, de Vauloger (1, MHNP).

Bagous geniculatus group

This species group is characterized by: antennal funicular segment 7 moderately transverse, with pubescence as sparse as other segments, distinctly separated from club; antennal club with basal segment elongate and glabrous, other segments shortened and distinctly pubescent (fig. 52); prosternal sulcus obliterated, with basal prominent transverse ridge; tibiae with long swimming hairs; median lobe with apex sagittate, orifice with moveable sclerites which appear like a dorsal process ("false" dorsal process, fig. 130) and with long median setal brush; female pygidium with apex broadly blunted, forming flat, thickened, arcuate margin (fig. 66).

This appears to be the sister group of the *B. biimpressus* group, with which it has traditionally formed the subgenus *Ephimeropus*, and is presently composed of two Palearctic species and one Indian species, *B. geniculatodes* O'Brien.

47. *Bagous geniculatus* (Hochhut) (fig. 31, 52, 63, 66, 130, 200)

Ephimeropus geniculatus Hochhut, 1847: 544. Schilsky, 1907: 29.
Bagous geniculatus (Hochhut), Hoffmann, 1954: 717. Dieckmann, 1964a: 91, 99; 1983: 354, 357. Lohse, 1983: 48. Tempère & Péricart, 1989: 166.
Bagous sahlbergi Schilsky, 1911: 98 (**n. syn.**).
Bagous denticulatus Hustache, 1913: 234; 1930: 207, 211.
Ephimeropus doderoi Solari, 1930: 49. Hoffmann, 1954: 717, 719. Dieckmann, 1983: 356.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum short, 0.70X as long as pronotum, reddish black, cylindrical; dorsal curvature moderate and even; ventral curvature weak and even; slightly subangulate at antennal insertion; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, pitted and not pitted, round, whitish gray. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, medium sized, 0.57X as long as head across ocular lobes; scales subgranulate, contiguous, finely pitted and not pitted, round, whitish gray; supraocular setae lacking. Frons broad, 0.58X as wide as head across eyes, somewhat flattened, not impressed, moderately distinctly set off from rostrum by shallow median impression; with median sulcus, shallow, narrow, long. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle long, 1.30X as long as scape, segment 1 stout, 2 slender and longer than 1, 3 slightly longer than wide, 4-6 subquadrate, 7 moderately transverse; club elongate-oval, 0.61X as long as funicle, reddish (fig. 52). Pronotum transverse, 0.87X as long as broad; strongly expanding from base; apical constriction moderate, in apical 1/6, dorsally shallower medially; sides strongly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae moderate in number, scarcely evident, short, recumbent to subrecumbent, curved, coarse; scales granulate, indistinctly pitted, subcontiguous to non-contiguous, sublunate, distinctly emarginate to round, pale tan; with 3 vittae; median vitta moderately broad, interrupted, indefinite, uneven, pale grayish; lateral vitta broad, pale grayish; ocular lobes moderately developed, reddish black. Prosternal sulcus lacking. Scutellum small. Elytra subparallel behind humeri to declivity; 1.40X as long as wide; disc area strongly convex; declivity at 60 degrees (in relation to dorsal plane); strongly wider than pronotum; apices subacuminate, conjointly slightly emarginate (fig. 63); humeri well-developed, weakly obliquely angulate, subacute, dorsolaterally projecting; even-numbered intervals moderately convex to flat; odd-numbered intervals not more convex and elevated, with setae inconspicuous, short, recumbent, curled, fine, pale; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, moderately narrow; punctures small, scarcely evident, round, narrow, moderately deep and well-separated, slightly wider than strial grooves; scales subgranulate, subcontiguous, finely pitted to broadly pitted, round to sublunate, distinctly emarginate, arranged irregularly, gray, grayish brown, and grayish white; maculate; cuticle reddish. Metathoracic wing fully developed. Mesosternal process small, triangular, very narrow between coxae. Metasternum 0.97X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, deeper and not narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.40X as long as 2; suture between 1 & 2 straight, broadly fused medially, deep laterally. Sternum 2 convex; apical 2/5 declivous; 1.70X as long as 3 & 4

together. Sternum 5 with median impression only; apicomedian and basal area flat; median impression shallow, broad, transverse; with one pair of suberect, coarse apicolateral setae; 1.80X as long as 3 & 4 together, 1.10X as long as 2, 0.80X as long as 1. Legs moderately long. Femora weakly clavate, reddish. Tibiae slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, distinct, small, with long evident bristles; outer surface with long evident setae; uncus moderately long, moderately stout, subequal to width of tibial apex. Tarsi long, linear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, linear, truncate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with several very long apical bristles. Length, pronotum and elytron: 3.40 mm.

Female. Same as male except: rostrum 0.76X as long as pronotum. Antennae inserted just behind middle. Sternum 1 with median impression interrupted (basal and apical), flattened in middle 1/2. Length, pronotum and elytron: 3.40 mm.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 130). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided; extreme apex elongate, subacute, narrowly rounded, sagittate, posteriorly with strongly acute angles, in lateral view slender, strongly declivous, acute; pair of moveable sclerites over orifice, overlapping and posteriorly directed in repose, vertical and separate in protracted position, with pair of elongate median setal brushes; dorsobasal margin distinct, deeply emarginate; ventrobasal margin indistinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice large, 1/3 length of median lobe, with proximal margin distinct, deeply concave; portion between distal margin of pseudo-orifice and base nearly 1/2 length of median lobe. Orifice with proximal margin concealed by articulated sclerite. Apodemes very short, curving strongly inward and with extreme apex sinuate, 0.10X as long as median lobe. Internal sac without sclerites. Tegmen with cap-piece. Female (fig. 200). Sternum VIII with apical setae numerous, long, slender; arms broad, parallel, with inner margins more or less straight, with outer margins broadly arcuate; fenestral area open, broad. Apodemes strongly divergent from ca midlength; narrowly separated to ca midlength. Spermatheca with ramus indistinct, extending slightly past insertion of spermathecal duct, with outline almost uniformly continuous with body; spermathecal gland arising at apex of ramus; nodulus irregularly wrinkled. Gonocoxae short, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; with apical margin bluntly rounded.

INTRASPECIFIC VARIATION - The vestiture also can be greyish unicolorous. The colour of the femora and tibiae varies from reddish to dark brown. Size range 3.20-3.90 mm.

REMARKS AND COMPARATIVE NOTES - In Anatolia and Central Asia this species could be confused with *B. mucronatus* from which it is distinguished by the elytral apices not acuminate and the elytral striae coarser and with distinct punctures.

BIOLOGICAL NOTES - This probably halophilic and halobiont species was collected by Chobaut and Puel by sifting residues of *Potamogeton pectinatus* L. on the salt shore in Camargue (Hustache, 1930). Also Pelletier and Péricart collected *B. geniculatus* in large series on

residues of *P. pusillus* L. on the shore of a sublittoral salt pool (Tempère & Péricart, 1989). It was collected also in the salt steppes of Central Asia.

TYPE LOCALITY - Caucasus (without further detail).

NOTE ON TYPE SPECIMENS - This species was described as *Ephimeropus* based on specimens from Caucasus of which we examined one male syntype (DEIE) labelled "Caucasus / coll. Stierlin / J. Schilsky rev. 1907 / Holotypus / *Ephimeropus geniculatus* Hochh. / Voss det. / Dr. F. Zumpt det. 1935" (lectotype here designated).

SYNONYMIES - Schilsky described *B. sahlbergi* based on three specimens from Memphis (Egypt), of which we examined one female (Schilsky collection, MNHB) labelled "Cairo / Memphis / J. Sahlb. / Typus / Coll. Schilsky / *Sahlbergi* Schils. / von Schilsky als *Bagous sahlbergi* beschrieben / *Ephimeropus sahlbergi*, F. Zumpt det. 35" (lectotype here designated). This specimen is a typical *B. geniculatus*.

We did not find specimens of *B. denticulatus* described from Les-Saintes-Marie-de-la-Mer (Camargue, France) but in the Hustache collection (MHNP) we examined one specimen labelled "Valcares, 11.5.1919, L. Puel, Type" classified as *B. denticulatus* by the same author. We confirm the already reported synonymy of this species with *B. geniculatus*.

With regard to *Ephimeropus doderoi*, described from specimens from Sardinia (Terranova Pausania) without establishment of the holotype, in the Solari collection (MSNM) we examined one male and two females labelled "Terranova P., Sard., A. Dodero / *Ephimeropus Doderoi* m. det. F. Solari" and respectively "holotypus!" "allotypus!" and "paratypus!" (we designated as lectotype the male specimen labelled "holotypus"). We confirm the synonymy of this species with *B. geniculatus* proposed by Hoffmann (1954) and Dieckmann (1983) based on the original description.

RANGE - Southern and western (Vendee) France, Sardinia, southeastern Central and East Europe (southern Austria, Croatia, Hungary, Bulgaria), Anatolia, Caucasus, Central Asia (Kazakhstan, Uzbekistan, Turkmenistan, Afghanistan), Egypt.

MATERIAL EXAMINED - Apart from the type specimens (see above) 49 nontype specimens. France: Camargue, Vaccarès, 11.V.1919, Dr. A. Chobaut (4, MHNP; 4, UJIZ); La Tranche sur Mer, Les Vislettes, 14.V.1988, J. Pelletier (3, FTCF; 2, RCCM). Italy: Sardegna, Terranova Pausania, A. Dodero (3, MSNM). Austria: Burgenland, Stundlacke-Apetion, 14.VI.1990, leg. M. Jäch (2, NHMW). Croatia: Dalmazia, Reitter (1, MNHB). Turkey: Turchia, Yakaciftlik, 1400 m, Antalya vil., 8.VI.1974, Osella (3, GOCA). Azerbajdzan: Araxesthal, Leder & Reitter (1, MNHB); Caucasus, Geok-Tapa, A. Schelkownikow (1, MCNM; 1, MSNM); ditto, L. Mesnier (4, UJIZ). Kazakhstan: Syr-Darja Gebt., Kisilkum Wuste, V. 43, Fischer u. Willberg (3, MNHB); 200 km W of Tashkent, Kyzylkum desert, Chardara (Koksu), 3-5.V.1990, leg. Jaroslav Turna (1, FTCF); Transcaspien, Tschardschui, 53, Fischer u. Willberg (1, MNHB). Uzbekistan: Buchara, Jekatut, V.-VI.1905, Wolowodow S. V. (8, MNHB); Repetek, Bucharia (1, HNHM); Uzbekistan mer., Kyzylkum, leg. Kostal / Karaubazar pr. Buchara 5 km NW 300 m, 30-31.V.1987 (4, MKCB). Afghanistan: Kuschke, Coll. Hauser 1896 (1, CWOB). Egypte: Ramlé (1, MHNP)

48. **Bagous mucronatus** n. sp. (fig. 64, 131)

DESCRIPTION - Male (holotype). Body medium-sized, moderately elongate-oval, moderately robust. Rostrum short, 0.72X as long as pronotum, reddish black, cylindrical; dorsal curvature

moderate and even; ventral curvature weak and even; slightly subangulate at antennal insertion; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, pitted and not pitted, round, whitish gray. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, medium sized, 0.55X as long as head across ocular lobes; scales subgranulate, contiguous, finely pitted and not pitted, round, whitish gray; supraocular setae lacking. Frons broad, 0.55X as wide as head across eyes, somewhat flattened, not impressed, moderately distinctly set off from rostrum by shallow median impression; not sulcate nor foveate medially. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle long, 1.26X as long as scape, segment 1 stout, 2 slender and longer than 1, 3 slightly longer than wide, 4-6 subquadrate, 7 moderately transverse; club elongate-oval, 0.59X as long as funicle, reddish. Pronotum transverse, 0.83X as long as broad; strongly expanding from base; apical constriction moderate, in apical 1/6, dorsally shallower medially; sides strongly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae moderate in number, scarcely evident, short, recumbent to subrecumbent, curved, coarse; scales granulate, indistinctly pitted, subcontiguous to non-contiguous, sublunate, distinctly emarginate to round, pale tan; with 3 vittae; median vitta moderately broad, interrupted, indefinite, uneven, pale grayish; lateral vitta broad, pale grayish; ocular lobes moderately developed, reddish black. Prosternal sulcus lacking. Scutellum small. Elytra subparallel behind humeri to declivity; 1.44X as long as wide; disc area strongly convex; declivity at 60 degrees (in relation to dorsal plane); strongly wider than pronotum; apices acuminate, conjointly strongly emarginate (fig. 64); humeri well-developed, weakly obliquely angulate, subacute, dorsolaterally projecting; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, short, recumbent, curled, fine, pale; confluence of intervals 3 and 9 distinctly tuberculate; strial grooves distinct, shallow, narrow; punctures minute, scarcely evident, moderately elongate, narrow, shallow, not wider than strial grooves; scales subgranulate, subcontiguous, finely pitted to broadly pitted, round to sublunate, distinctly emarginate, arranged irregularly, gray, grayish brown, and grayish white; maculate; cuticle reddish. Metathoracic wing fully developed. Mesosternal process small, triangular, very narrow between coxae. Metasternum 0.97X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, deeper and not narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.40X as long as 2; suture between 1 & 2 straight, broadly fused medially, deep laterally. Sternum 2 convex; apical 2/5 declivous; 1.70X as long as 3 & 4 together. Sternum 5 with median impression only; apicomedian and basal area flat; median impression shallow, broad, transverse; with one pair of suberect, coarse apicolateral setae; 1.80X as long as 3 & 4 together, 1.10X as long as 2, 0.80X as long as 1. Legs moderately long. Femora weakly clavate, reddish. Tibiae slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, distinct, small, with long evident bristles; outer surface with long evident setae; uncus moderately long, moderately stout, subequal to width of tibial apex. Tarsi long, linear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2,

linear, truncate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with several very long apical bristles. Length, pronotum and elytron: 3.50 mm.

Female (allotype). Same as male except: rostrum 0.74X as long as pronotum. Antennae inserted just behind middle. Sternum 1 with median impression interrupted (basal and apical), flattened in middle 1/2. Length, pronotum and elytron: 3.60 mm.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 131). Same as *B. geniculatus* (fig. 130) except apex of median lobe acutely sagittate. Female. As *B. geniculatus* (fig. 200).

INTRASPECIFIC VARIATION - The type series is uniform. There are no differences between the specimens from Turkey and the specimens from Iraq and Pakistan. Size range 3.60-4.10 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. geniculatus*, from which however it is easily distinguishable by the acuminate elytral apices and the narrower elytral striae with indistinct punctures. The two species share the shape of the genitalia. *Bagous mucronatus* is also closely related to *B. geniculatodes* from India which possesses a distinctly more pronounced elytral apical process, more elongate elytra, especially due to the longer caudal prolongation, and wider elytral striae with distinct punctures.

BIOLOGICAL NOTE - The specimens collected at Quetta were found feeding on stems of *Myriophyllum spicatum* L..

TYPE LOCALITY - Antakya (Turkey).

NOTE ON TYPE SPECIMENS - Holotype (GOCA), allotype (GOCA) and 30 paratypes (CWOB, GOCA, RCCM) all similarly labelled: "Turchia, Antakya, 19. V. 1966, leg. Klapperich"; one paratype (HNHM): [Iraq] "Bagdad / *B. haematopus* Gyll., Coll. Reitter"; one paratype (MNHB): "Bagdad / Coll. L. W. Schaufuss / *Bagous geniculatus* Hochh., Dieckmann det. 1982"; three paratypes (MHNG): "Mesopot. [Mesopotamia], Milling"; one paratype (SMNS): "Iran, Khuzistan, Shadegan, 1.-10.IV.1956, leg. Richter u. Schäuffele"; two paratypes (NHMB): "Persien, Sistan., 10.IV.1950, Coll. Sharif"; one paratype (HNMB): ditto except "15-17.V.1950"; one paratype (HNMB): "Hofuf, 23.VIII.1978 / Saudi Arabia , A. S. Talhouk"; 11 paratypes (3, CIBC; 5, CWOB; 3, USNM): [Pakistan] "Quetta, 19.VII.66 / 3214 / Adult feeding on stem of *M. spicatum* ".

RANGE - Southern Central Turkey, Iraq, Iran, Saudi Arabia, Pakistan.

MATERIAL EXAMINED - We studied only the specimens of the type series (see above).

Bagous argillaceus group

This group is characterized by: scales smooth and shiny (fig. 32), with at most a very fine pit; supraocular setae very slender, long, erect and curved; pronotum with complete median longitudinal sulcus or impression; prosternum with scarcely evident sulcus, lateral margin more or less parallel and weakly raised; tibiae with dorsal margin slightly arcuate; tarsi moderately short-sublinear to elongate-sublinear, tarsomeres moderately broadened apically, and/or tarsomere 3 slightly broader than 2; median lobe with pseudo-orifice large to very large, apparent orifice strongly extended proximally, ventrally sinuate in area beneath orifice, lateral surface below flange concave; apodemes moderately short; orifice with short, lateral, vertical sclerite; internal sac with bilaterally symmetrical organ comprised of several

sclerites (figs. 135-136); apodemes of female sternum VIII strongly divergent, contiguous only at extreme base (figs. 203-204).

This group is represented by two species in this region, *B. argillaceus* and *B. fremuthi*, one Indian species, *B. laevigatus* O'Brien & Pajni, other eastern Palearctic species, and an undescribed South African species.

49. *Bagous argillaceus* Gyllenhal (figs. 32, 135, 203)

Bagous argillaceus Gyllenhal, 1836: 542. Brisout, 1863: 517. Hustache, 1927: 125, 132.; 1930: 207, 232. Sharp, 1917b: 107. Hoffmann, 1954: 724, 739. Dieckmann, 1964a: 92; 1975, 25: 202. Lohse, 1983: 50.

Bagous haematopus Gyllenhal, 1836: 543 (**n. syn.**).

Bagous inceratus Gyllenhal, 1836: 544. Brisout, 1863: 518. Schilsky, 1907: 66, Hustache, 1930: 233. Dieckmann, 1975: 202.

Bagous encaustus Boheman, 1845: 76. Brisout, 1863: 515. Dieckmann, 1975: 202.

Bagous halophilus Redtenbacher, 1858: 893. Dieckmann, 1975: 202.

Bagous leprieuri Guillebeau, 1890: 74.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.83X as long as prothorax, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus moderately developed, broad, long, coarsely punctate; ventral margin weakly subangulate, not carinate; sides subparallel, moderately subquadrately expanded in apical 1/2; scales dense in basal 2/3, not granulate, subcontiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eye weakly convex, medium-sized, 0.49X as long as head across ocular lobes; scales subgranulate, subcontiguous, broadly impressed to not pitted, round to oval, brownish; supraocular setae few, long, distinct, subrecumbent, curved, slender, linearly arranged. Frons very broad, 0.71X as wide as head across eyes, weakly convex, shallowly impressed, indistinctly set off from rostrum by shallow impression; median fovea moderately deep, small. Antennae inserted just behind apical 1/3; scape moderately long, moderately slender, subclavate; scape and funicle reddish; funicle moderately short, 0.76X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.52X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.89X as long as broad; subparallel-sided; apical constriction moderately weak, in apical 1/7, dorsally shallower medially; weakly rounded behind constriction; sides not impressed somewhat behind round area; median sulcus indistinct, narrow, incomplete, forming small, weak, shallow subbasal impression; disc transversely flattened, not rugose or rugulose; apical and marginal setae moderate in number, moderately distinct, short, subrecumbent, curved, fine; scales flattened and smooth, pitted, contiguous, round to oval, mainly pale brown; with 3 vittae; median vitta moderately broad, interrupted, indefinite, uneven, pale grayish; lateral vitta moderately broad, pale grayish; ocular lobes moderately developed, reddish brown. Prosternal sulcus moderately shallow, broad, weakly narrowed at apical constriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra gradually narrowing behind humeri to declivity;

1.45X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, weakly obliquely angulate; even-numbered intervals flattened; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, very short. subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 lacking; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, shallow, narrow; with punctures minute, scarcely evident; scales flattened, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula small white; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.03X as long as sternum 1. Sternum 1 with median impression deep, broad, continuous for entire length, not deeper and not narrowed apically, continued shallowly on sternum 2; apical margin not declivous; 1.26X as long as 2; suture between 1 & 2 straight, broadly fused medially, deep laterally. Sternum 2 medially impressed, impression broad, shallow; apically declivous; 2.00X as long as 3 & 4 together. Sternum 5 flat; with cluster of three to four suberect, coarse apicolateral setae; 1.71X as long as 3 & 4 together, 0.86X as long as 2, 0.60X as long as 1. Legs moderately long. Femora subclavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); with apices not narrowed; inner surface not denticulate, with long evident bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately slender, subequal to width of tibial apex. Tarsi moderately long, sublinear; dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.80 mm.

Female. Same as male except: rostrum 0.85X as long as pronotum, broadly subcylindrical; very slightly depressed in apical 1/2. Antennae inserted at apical 2/5. Sternum 1 with median impression shallow, broad, interrupted (basal and apical), flattened in middle 1/2, not continued on sternum 2. Sternum 2 flattened. Sternum 5 with median subapical and pair of subbasal lateral impressions; apicomedian area transversely convex; basal area flat; median impression shallow, broad, subtriangular; lateral impression moderately deep, large, slightly deeper than median impression.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 135). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; widest at orifice, slightly constricted behind orifice, enlarging toward base; extreme apex elongate, very broadly subacute, explanate, in lateral view slender, declivous; dorsobasal margin distinct, truncate; ventrobasal margin indistinct, slightly emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, 1/4 length of median lobe, with proximal margin distinct, deeply concave. Orifice more or less oval; proximal margin distinct, slightly sclerotized. Apodemes short, curving strongly inward, 0.21X as long as median lobe. Internal sac with orificial sclerites distinct, subacute, sclerotized, with minute denticles; with very large sclerite complex. Tegmen with cap-piece. Female (fig. 203). Sternum VIII with apical setae numerous, long, slender; arms slender,

parallel, with inner margins broadly, shallowly arcuate, with outer margins broadly, shallowly emarginate; fenestral area open, broad. Apodemes broadly divergent from apical 1/3, narrowly separated to base. Spermatheca with ramus prominent, markedly extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly convex. Gonocoxae short, very robust, more or less straight from base to apex. Bursa copulatrix with complex subspherical sclerite. Tergum VIII transverse, much wider than long; apical margin medially slightly truncate. Pygidium with apex bluntly rounded.

INTRASPECIFIC VARIATION - The differences in size between specimens even of the same population are noteworthy, varying from 2.60 to 4.80 mm. Sometimes the pronotum has a distinct narrow longitudinal median sulcus. The frontal sulcus varies moderately in depth and width. Also the tarsi vary moderately in length and tarsomere 3, usually longer than wide, may be as long as wide.

REMARKS AND COMPARATIVE NOTES - Due to the smooth and shining vestiture, among the western Palearctic species this species can be confused only with *B. fremuthi*, which is very closely related in external morphology (see differences in key to the species) but is markedly different in the shape of the male genitalia. From *B. dieckmanni*, which has shining vestiture, *B. argillaceus* clearly differs in the flattened and smooth scale texture, the flattened disc of the pronotum, and the tibiae lacking denticles along the inner margin.

BIOLOGICAL NOTE - This species is probably halophilic, since it is found in salt grounds. Its host is unknown.

TYPE LOCALITY - Tauria (Turkey).

NOTES ON TYPE SPECIMENS - We examined the two male syntypes already examined by Dieckmann (1975) in NHRS and respectively labelled "Tauria, Steven / Typus" (lectotype here designated) and "Caucas., Steven / Paratypus".

SYNONYMIES - In NHRS we examined one male syntype of *B. inceratus* labelled "Kislar, Steven / Typus" (lectotype here designated) and one female syntype of *B. encaustus* labelled "1239 Chevr., Pyrénées oriental" (lectotype here designated) also studied by Dieckmann (1975). The syntypes of *B. halophilus* (type locality: Neusiedler See, Austria) and *B. leprieuri* (type locality: Plantay pool, Ain, France) were not available, but there are no doubts about their synonymy with *B. argillaceus* as stablished by many previous authors. In NHRS we also examined one female syntype of *B. haematopus*, never studied by authors after its description. As in the case of the lectotype of *B. inceratus*, it is labelled "Kislar, Steven / Typus" (lectotype here designated) and has no differences from typical *B. argillaceus*.

RANGE - This species is largely widespread in the Palearctic Region, in the east from southern central Siberia, Mongolia and Afghanistan throughout all Europe (although rarer in the north), the Middle East, and North Africa as far as Morocco.

MATERIAL EXAMINED - We studied about 500 specimens from Ukraine, Hungary, Germany, Slovakia, Austria, France, Spain, Portugal, Italy, Croatia, Bosnia, Serbia, Albania, Greece, Bulgaria, Turkey, Armenia, Azerbajdzan, Turkmenistan, Kazakhstan, Afghanistan, Mongolia, Morocco, Algeria, Egypt.

50. *Bagous fremuthi* Dieckmann (figs. 136, 204)

Bagous fremuthi Dieckmann, 1975: 201.

REDESCRIPTION - Same as *B. argillaceus* except: eyes large, 0.69X as long as head across ocular lobes. Frons not impressed; not sulcate nor foveate medially. Pronotum with apical constriction weak. Elytra with declivital callus of interval 5 very weakly developed. Female. Sternum 1 with median impression very shallow.

GENITALIA AND ASSOCIATED STRUCTURES. Male (fig. 136). Median lobe distinctly constricted behind orifice; extreme apex subacute, narrowly rounded, angulately explanate; dorsobasal margin shallowly emarginate; ventrobasal margin deeply emarginate; pseudo-orifice short, slightly enlarging apparent orifice. Internal sac with short, lateral sclerite in orifice and small sclerite complex. Female (fig. 204). Sternum VIII with inner margins more or less straight, outer margins parallel. Apodemes narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, nodulus more or less flat. Gonocoxae robust. Bursa copulatrix with diamond-shaped, medially invaginated, convex sclerite. Tergum VIII with apical margin bluntly rounded. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - Some specimens have a shallow longitudinal median sulcus on the pronotum. Size range 2.30-3.50 mm.

REMARKS AND COMPARATIVE NOTES - Among the Palearctic species it can be confused only with *B. argillaceus* (see key and remarks of this species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Repetek (Turkmenistan).

NOTE ON TYPE SPECIMENS - We examined the holotype (DEIE) labelled: "USSR, Turkmenistan, Repetek, April 1900, leg. Hauser" and 12 paratypes (CWOB, DEIE, JFCH, MNHB) from Iran (Basra) and Uzbekhistan (Buchara, Tschardschui).

RANGE - Iran, Iraq, Caucasus (Azerbajdzan), Uzbekhistan, Turkmenistan, Tadzikistan.

MATERIAL EXAMINED - Apart from the type specimens (see above) 19 nontype specimens. Azerbajdzan: Guéox-Tapa, L. Mesmin (1, MHNP; 3, UJIZ); Kaukas, O. Schneider (1, MNHB). Iraq: Irak, Bakuba NO v. Bagdad, 23.V.1963, Kasy & Vartian (1, NHMW); Mesopot., Gurna, 9. IX.1910 (4, NHMW). Iran: E. Iran, Kuh-e-Khvajek, 3-5.VI.1977 (2, RCCM); Persia, Kopet-dagh, Descht, VI.1902, Hauser (3, NHMW); Basra, 14.IV.1926, Schmidt (1, UJIZ). Uzbekistan: Transcaspia, Gran Balchan (2, MMCT); Aulie-Ata, Staudiger (1, MHNP).

Bagous lutosus group

This species group is characterized by: body elongate-oval (fig. 33); tibiae distinctly curved at apex; tarsi short, tarsomere 3 subcordate and slightly wider then tarsomere 2; median lobe robust, with one pair of elongate sclerotized plates, up-turned at base and covering orifice, and with ventral median vermiform sclerite only visible when plates are opened; internal sac with W-shaped sclerite complex basally articulate, entwined by membranous saccule with many very small spicules and dorsally open (fig. 137).

This group is presently composed only of *B. lutosus*, widespread in Europe and western and central Asia.

51. *Bagous lutosus* (Gyllenhal) (figs. 33, 137, 205)

Rhynchaenus lutosus Gyllenhal, 1813: 85.

Bagous lutosus (Gyllenhal), Gyllenhal, 1836: 541; 1845: 85. Brisout, 1863: 511. Schilsky, 1907: 53. Hustache, 1930: 210, 233. Hoffmann, 1954: 740, 741. Dieckmann, 1964a: 98; 1983: 369, 371. Lohse, 1983: 55.

Abagous lutosus (Gyllenhal), Sharp, 1917a: 30.

Bagous validitarsus Boheman, 1845: 87. Hustache, 1930: 234. Neresheimer & Wagner, 1930: 267.

Bagous caudatus Thomson, 1865: 188.

REDESCRIPTION - Male. Body medium-sized, broad-oval, robust. Rostrum moderately short, 0.84X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin subangulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.52X as long as head across ocular lobes; scales nongranulate, contiguous, pitted, round, brownish; supraocular setae few, short, indistinct, subrecumbent, curved, slender, linearly arranged. Frons broad, 0.65X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, indistinctly set off from rostrum by shallow impression; median sulcus shallow, narrow, long. Antennae inserted at apical 1/3; scape moderately long, moderately slender, subclavate; scape and funicle reddish; funicle moderately short, 0.81X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.58X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.92X as long as broad; subparallel-sided; apical constriction moderate, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, slightly impressed behind round area; median sulcus indistinct, narrow, complete, forming moderately large, weak, shallow subbasal impression; disc moderately convex, weakly rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales subgranulate, pitted, subcontiguous, round, blackish brown; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish brown. Prosternal sulcus moderately deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum small. Elytra subparallel behind humeri to declivity; 1.55X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, very short subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 lacking; declivital callus of interval 5 very weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately shallow, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, usually with 3 or more

scales across intervals, black, brown, and tan; maculate; humeri with macula pale whitish brown; antedeclivital area of interval 3 with macula pale tan; declivital callus of interval 5 with macula pale tan; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.17X as long as sternum 1. Sternum 1 with median impression deep, broad, continuous for entire length, deeper and narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.12X as long as 2; suture between 1 & 2 arcuate, narrowly fused medially, deep laterally. Sternum 2 basally convex; apical 1/2 steeply declivous; 2.07X as long as 3 & 4 together. Sternum 5 with subapical median impression only; basally flat; with pair of small subapical tubercles; median impression shallow, broad, subtriangular; with cluster of three to four suberect, coarse apicolateral setae; 2.21X as long as 3 & 4 together, 1.07X as long as 2, 0.90X as long as 1. Legs moderately long. Femora subclavate, reddish brown. Tibiae slender, reddish brown; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, distinct, minute, with conspicuous short bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex. Tarsi moderately long, broad, reddish brown; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, broadly cordate, rather deeply emarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.30 mm.

Female. Same as male except: rostrum 0.87X as long as pronotum; dorsal curvature weak and uneven; moderately depressed in apical 1/2. Antennae inserted at apical 2/5. Sternum 1 with median impression moderately shallow, moderately narrow, interrupted (basal and apical), not deeper and broader apically; convex in middle 1/2. Sternum 5 with median subapical and pair of subbasal lateral impressions; median impression moderately shallow, broad, transverse; lateral impression moderately shallow, elongate, subequal to median impression in depth.

GENITALIA AND ASSOCIATED STRUCTURES. Male (fig. 137). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; very slightly broader basally, enlarging toward base; extreme apex somewhat elongate, subacute, narrowly rounded, angulately explanate, in lateral view robust, evenly and moderately curved, tapering; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice large, 1/2 more length of median lobe, with proximal margin distinct, arcuate. Orifice more or less oval; proximal margin concealed by articulated sclerite. Apodemes tapering, short, curving inward, 0.30X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Tegmen with cappiece. Female (fig. 205). Sternum VIII with apical setae numerous, very short, slender; arms broad, parallel, with inner margins more or less straight, with outer margins broadly, shallowly emarginate; fenestral area open, elongate-narrow. Apodemes broadly divergent near apex only, narrowly separated to near base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, with outline almost uniformly continuous with body; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, markedly convex. Gonocoxae short, robust, broadest at apex. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; apical margin emarginate, very slightly reflexed but not forming distinct lip. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - The dark scales vary in colour from blackish brown to brown, and the pale scales from pale tan to greyish, forming more or less distinct maculae. Size range 3.50-4.20 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous lutosus* is the most slender species in the western Palearctic with wide subcordate tarsomere 3, with its elytra 1.5X as long as wide.

BIOLOGICAL NOTE - This species probably lives on *Sparganiun ramosum* Huds. (Hoffmann, 1954) underwater.

TYPE LOCALITY - Sweden (without further detail).

NOTES ON TYPE SPECIMENS - We examined the lectotype (male) labelled "c [Uppsala Univ. Zool. Mus. Gyllenhals saml. TYP. nr. 1519] Lectotypus *Bagous lutosus* Gyll. design. N. Bruce - 66" and one paralectotype both preserved at ZMUU.

SYNONYMIES - We examined one male syntype (NHRS) of *B. validitarsus* labelled "Typus / Paris, Chevrol." (lectotype here designated) and confirmed its synonymy with *B. lutosus*.

We follow the previous opinion of several authors and consider *B. caudatus* from Sweden as synonymous with *B. lutosus*.

RANGE - Europe, western and central Asia (with its eastern limit in Kazakhstan).

MATERIAL EXAMINED - We studied 145 specimens from Russia, Ukraine, Poland, Germany, Hungary, Czech Rep., Slovakia, Austria, France, Italy, Croatia, Serbia, Albania, Romania, Turkey and Azerbajdzan.

Bagous interruptus group

This species group is characterized by: pronotum with prominent to acute anterolateral tubercle (scarcely evident in *B. peregrinus* and *B. meregallii*); pronotal disc moderately strongly transversely convex and not medially sulcate nor impressed; pseudo-orifice large to very large, apparent orifice strongly extended proximally (except for *B. meregallii*); internal sac with bilaterally symmetrical organ comprised of several sclerites (figs. 138-141).

This group, named for the Indian species *B. interruptus* Faust, presently includes four other species from southeastern Asia, and five western Palearctic species. Whereas the external habitus of some species which belong to this group is markedly different from others so that one could doubt their belonging to the same group, the shape of the very characteristic male genitalia is extraordinarily similar in all of these species and strengthens the hypothesis of their monophyly.

52. *Bagous sardiniensis* Brisout (figs. 34, 138, 207)

Bagous sardiniensis Brisout, 1863: 510. González, 1967: 97 (as *foveifrons*).

REDESCRIPTION - Male. Body medium-sized, elongate subcylindrical, slender. Rostrum short, 0.66X as long as pronotum, black, subcylindrical; dorsal curvature strong and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral sulcus lacking; ventral margin subangulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes flat, medium-sized, 0.44X as long as head across ocular lobes; scales subgranulate, contiguous, not pitted, round, brownish; supraocular setae few, short, indistinct,

recumbent, curved, coarse, linearly arranged. Frons very broad, 0.74X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, moderately distinctly set off from rostrum by shallow median impression; median fovea moderately deep, large. Antennae inserted at middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish brown; funicle long, 1.33X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.50X as long as funicle, reddish black. uniformly pubescent, segment 1 as long as segments 2-4. Pronotum transverse, 0.84X as long as broad; moderately expanding from base; apical constriction strong, in apical 1/6, dorsally distinct and uniform; sides strongly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely moderately convex, weakly rugulose; apical and marginal setae few, scarcely evident, short, subrecumbent, curved, fine; scales granulate, finely pitted, subcontiguous, round, brownish; with 3 vittae; median vitta broad, complete, indefinite, uneven, pale grayish brown; lateral vitta moderately broad, pale grayish brown; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately shallow, broad, strongly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum small. Elytra gradually narrowing behind humeri to declivity; 1.40X as long as wide; disc area moderately convex; declivity at 90 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, obliquely rounded; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, broader than even intervals, with setae inconspicuous, very short. recumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 lacking; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales granulate, subcontiguous, finely pitted to not pitted, round, arranged irregularly, brown, and grayish white; maculate; cuticle reddish. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.02X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.18X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apically weakly declivous; 2.00X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; basally flat; median impression deep, narrow, subtriangular, lateral impressions shallow, large, slightly deeper than median impression; with cluster of three to four suberect, coarse apicolateral setae; 1.85X as long as 3 & 4 together, 0.89X as long as 2, 0.75X as long as 1. Legs moderately long. Femora subclavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus short, moderately stout, shorter than width of tibial apex. Tarsi moderately long, sublinear; reddish brown; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally

each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.30 mm.

Female. Same as male except: rostrum 0.66X as long as pronotum; dorsal curvature moderate and uneven; very slightly depressed in apical 1/2. Antennae inserted just behind middle. Sternum 1 with median impression shallow.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 138). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; very slightly broader basally, enlarging toward base; extreme apex somewhat elongate, very broadly subacute, angulately explanate, in lateral view robust, declivous, tapering; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice more or less oval; proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward, 0.13X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Tegmen with cap-piece. Female (fig. 207). Sternum VIII with apical setae numerous, very short, slender; arms slender, parallel, with inner margins more or less straight, with outer margins parallel; fenestral area open, broad-oval; plate not in same plane as apodemes. Apodemes moderately divergent near apex only, narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; apical margin somewhat produced medially, very slightly reflexed but not forming distinct lip; apicolaterally slightly swollen. Pygidium with apex bluntly rounded.

INTRASPECIFIC VARIATION - There are no differences between the specimen from Spain and the two specimens from Sardinia.

REMARKS AND COMPARATIVE NOTES - For the differences from *B. foveifrons* see remarks of that species. *Bagous sardiniensis* is also similar to *B. peregrinus*, from Ukraine, and can be distinguished by the shorter elytra, the declivital callus of interval 5 small but distinct, and the distinct male genitalia.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Sardinia (without further detail).

NOTES ON TYPE SPECIMENS - According to Brisout, this species was described based on one male and one female collected in Sardinia by Géné and preserved in the Aubé collection at the time of the description. However, we did not find these specimens in the Aubé (MHNP) nor in the Brisout (MHNP) collections. But in the historical collection of the MNHB, we found one female labelled "54487 / (... *subcarinatus* Schh.) Sardin., Géné / *Bagous sardiniensis* / *sardiniensis* Bris., Dieckmann det. 1971" corresponding perfectly to the original description and which we designate as lectotype.

RANGE - Sardinia, northern (reported as *foveifrons* by Gonzàlez from León, Pto. de San Glorio, 1600 m, one female) and central Spain.

MATERIAL EXAMINED - Apart from the type specimen (see above) 2 nontype specimens.

Italy: Sardinia, Mus. Berolin. (1, MNHB). Spain: Spagna, Avila, Gredos, 2000 m, Laguna Grande, 7.VII.1985, Osella (1, GOCA).

53. *Bagous foveifrons* Hustache

Bagous foveifrons Hustache, 1923: 72; 1927: 126, 133.

REDESCRIPTION - Same as *B. sardiniensis* except: elytra with declivital callus of interval 5 well-developed.

INTRASPECIFIC VARIATION - The specimens examined did not show noteworthy differences. Size range 3.70-4.00 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. sardiniensis*, with which it shares the shape of the male and the female genitalia. Only the presence of a constant and distinctly more pronounced callus at the declivity of interval 5 seems to permit the separation of the two taxa. However, it is necessary to examine additional specimens of the two taxa to establish whether this difference between *B. sardiniensis* and *B. foveifrons* persists or the two species actually are synonyms.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Casablanca (Morocco).

NOTE ON TYPE SPECIMENS - We examined 42 syntypes (1, BMNH; 2, MCNM; 38, MHNP; 1, MSNM) of this species and designated as lectotype one male (coll. Hustache, MHNP) labelled: "Casablanca, Maroc, Antoine / Type".

RANGE - This species is presently known only from the type locality (Casablanca, Morocco).

MATERIAL EXAMINED - We examined only type specimens (see above).

54. *Bagous bulgaricus* Angelov (figs. 139, 208)

Bagous bulgaricus Angelov, 1989: 69.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, robust. Rostrum short, 0.65X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; with ventral curvature weak and even; not more distinctly depressed toward apex; ventral margin subangulate, not carinate; sides subparallel, moderately expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.50X as long as head across ocular lobes; scales nongranulate, contiguous, finely pitted, round, brownish; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.67X as wide as head across eyes, weakly convex, not impressed, indistinctly set off from rostrum by shallow impression; not sulcate nor foveate medially. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish brown; funicle long, 1.06X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.59X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.87X as long as broad; moderately expanding from base; apical constriction moderate, in apical 1/5, dorsally shallower medially; sides strongly rounded behind constriction, moderately impressed behind round area; median sulcus lacking; disc transversely moderately convex, weakly

rugulose; apical and marginal setae lacking; scales subgranulate, indistinctly pitted, subcontiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately shallow, broad, weakly narrowed at apical constriction, not angulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum large. Elytra subparallel behind humeri to declivity; 1.40X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals moderately convex; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, very short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 lacking; declivital callus of interval 5 distinctly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures medium-sized, round, broad, moderately deep, wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.03X as long as sternum 1. Sternum 1 with median impression shallow, moderately narrow, continuous for entire length, deeper and slightly narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.13X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.82X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; apicomedian and basal area flat; median impression very shallow, broad, subtriangular, lateral impressions very shallow, large, subequal to median impression in depth; with cluster of three to four suberect, coarse apicolateral setae; 1.73X as long as 3 & 4 together, 0.95X as long as 2, 0.70X as long as 1. Legs moderately long. Femora subclavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex. Tarsi long, linear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.10 mm.

Female. Same as male except: rostrum 0.68X as long as pronotum; very slightly depressed in apical 1/2; expanded toward apex. Antennae inserted just behind middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 139). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; broadest basally, tapering toward apex; extreme apex broadly and uniformly rounded, in lateral view slender, declivous, acute; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice large, 1/2 length of median lobe, with proximal margin distinct, arcuate. Orifice short, triangular; proximal margin indistinct, not sclerotized. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.16X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite

complex. Tegmen with cap-piece. Female (fig. 208). Sternum VIII with apical setae numerous, very short, slender; arms broad, divergent, with inner margins more or less straight, with outer margins parallel; fenestral area open, triangular; plate not in same plane as apodemes. Apodemes broadly divergent near apex only, narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, slightly convex. Gonocoxae short, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII transverse, much wider than long; apical margin broadly rounded. Pygidium with apex bluntly rounded.

INTRASPECIFIC VARIATION - The only specimens from Ropotamo (female) and Harkany (male) have a smaller declivital callus on interval 5 (see also remarks). Size range 2.10-2.70 mm.

REMARKS AND COMPARATIVE NOTES - When we examined the specimen from Hungary, it was already dissected but unfortunately the median lobe had been lost as reported on a label in German ("Penis verloren") probably written by Dieckmann. Therefore, although we did not observe differences between it and type specimens apart from the less pronounced elytral callus, it would be interesting to examine other Hungarian specimens to confirm our determination. The same is true for specimens from Zákynthos of which we examined only one female.

This species is closely related to *B. peregrinus* from Ukraine from which it is separated in our key. It is related only apparently to *B. limosus* from which it clearly differs by the smaller punctures of the elytral striae and usually by the more pronounced declivital callus of interval 5.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Kumanica (Sofia, Bulgaria).

NOTES ON TYPE SPECIMENS - This species was described based on 11 specimens, ten of which were collected at Kumanica near Sofia, three of which were examined by us (one male and one female, UZMH; one female, SMTD all labelled "Kumanica near Sofia, 2.VI.1957, P. Angelov leg."), and one at Popovica.

RANGE - Bulgaria, Greece [Kérkira (= Corfu), Zákynthos (= Zante)], southwestern Hungary.

MATERIAL EXAMINED - Apart from the type specimens (see above) 5 nontype specimens. Bulgaria: Bulg. Ropotamo, leg. Cmoluch (1, UJIZ). Greece: Korfu, Valianiti, V.1964, leg. Palm (2, MMCT); Zante 1909, Kalamaki, legit M. Hilf, Coll. O. Leonhard (1, DEIE). Hungary: Hungaria m. occ., Harkany, 9-14.5.1982, leg. W. Richter (1, DEIE).

55. *Bagous peregrinus* Gratshev (fig. 140)

Bagous peregrinus Gratshev, 1993: 13.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, robust. Rostrum short, 0.69X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; with ventral curvature weak and even; not more distinctly depressed toward apex; ventral margin subangulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside

eye lacking; eyes weakly convex, medium-sized, 0.53X as long as head across ocular lobes; scales nongranulate, contiguous, finely pitted, round, brownish; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.72X as wide as head across eyes, somewhat flattened, shallowly impressed, indistinctly set off from rostrum by shallow impression; median fovea shallow, large. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish brown; funicle long, 1.10X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.60X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.85X as long as broad; moderately expanding from base; apical constriction moderate, in apical 1/5, dorsally shallower medially; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely moderately convex, weakly rugulose; apical and marginal setae lacking; scales subgranulate, indistinctly pitted, subcontiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately shallow, broad, weakly narrowed at apical constriction, not angulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum large. Elytra gradually expanding behind humeri to declivity; 1.44X as long as wide; disc area moderately convex; declivity at 45 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals moderately convex; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, very short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 lacking; declivital callus of interval 5 indistinct; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, shallow, narrow; punctures small, round, narrow, moderately shallow, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.08X as long as sternum 1. Sternum 1 with median impression shallow, moderately narrow, continuous for entire length, deeper and slightly narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.10X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.83X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; apicomedian and basal area flat; median impression very shallow, broad, subtriangular, lateral impressions very shallow, large, subequal to median impression in depth; with cluster of three to four suberect, coarse apicolateral setae; 1.76X as long as 3 & 4 together, 0.94X as long as 2, 0.70X as long as 1. Legs moderately long. Femora subclavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex. Tarsi long, linear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with

several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.00 mm.

Female. Same as male except: rostrum 0.73X as long as pronotum; very slightly depressed in apical 1/2; expanded toward apex. Antennae inserted just behind middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 140). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; widest at orifice, slightly constricted behind orifice, expanding toward apex; extreme apex elongate, more or less triangular, narrowly rounded, in lateral view slender, declivous, acute; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently more or less oval (i.e., pseudo-orifice produced); pseudo-orifice large, 1/2 length of median lobe, with proximal margin distinct, arcuate. Orifice short, triangular; proximal margin indistinct, not sclerotized. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.16X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Tegmen with cappiece. Female. As in *B. bulgaricus* (fig. 208).

INTRASPECIFIC VARIATION - The sides of the pronotum vary from subparallel to weakly expanding from base. The elytra varies in length (1.38-1.49X as long as wide). Size range 2.80-3.30 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. bulgaricus* and *B. sardiniensis* (see key and remarks of these species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Mandryk (Donezk, Ukraine)

NOTES ON TYPE SPECIMENS - This species was described based on six specimens collected at Mandryk (type locality) and Ur. Nikolskoe near Donezk in Ukraine and at Kolowetnoe on the Ural river in West Kazakhstan. We examined the male holotype and one female paratype (PIMR) respectively labelled " Ukraine, Donezk Reg., Mandryk, 15.IV.1920, B. Ilyin leg." and " Ukraine, Donezk Reg., Nikolskoe, 20.V.1920, B. Ilyin leg.".

RANGE - Russia, Ukraine, western Kazakhstan.

MATERIAL EXAMINED - Apart from the type specimens (see above) 7 nontype specimens. Russia: Samara (=Kuybysev), Faust (2, SMTD). Ukraine: Taganrog, Faust (5, SMTD).

56. **Bagous meregallii** n. sp. (figs. 35, 141, 206)

DESCRIPTION - Male (holotype). Body medium-sized, moderately broad-oval, moderately robust. Rostrum short, 0.73X as long as pronotum, black, subcylindrical; dorsal curvature moderate and uneven; ventral curvature weak and even; subangulate at antennal insertion; basolateral sulcus shallow, broad, long, coarsely punctate; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes flat, medium-sized, 0.48X as long as head across ocular lobes; scales nongranulate, contiguous, not pitted, round, brownish; supraocular setae lacking. Frons very broad, 0.79X as wide as head across eyes, moderately convex, not impressed, not set off from rostrum by impression. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and

funicle blackish; funicle moderately short, 0.86X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.72X as long as funicle, reddish black, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum transverse, 0.84X as long as broad; rounded from base; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides strongly rounded behind constriction, slightly impressed behind round area; median sulcus indistinct, narrow, incomplete, forming small, distinct, moderately shallow subbasal impression; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae lacking; scales nongranulate, pitted, subcontiguous, round, grayish; lacking vittae, with indistinct whitish brown maculae on disc; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately shallow, broad, strongly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra gradually narrowing behind humeri to declivity; 1.18X as long as wide; disc area strongly convex; declivity at 90 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, broader than even intervals, with setae conspicuous, short suberect, straight, fine, pale whitish; intervals 3-5 on disc uniformly parallel-sided; calli lacking; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, shallow, narrow; punctures minute, scarcely evident; scales subgranulate, imbricate, finely pitted to not pitted, round, arranged irregularly, gray, grayish brown, and grayish white; maculate; humeri with macula grayish white; cuticle blackish brown. Metathoracic wing rudimentary. Mesosternal process small, subtriangular between coxae. Metasternum 0.86X as long as sternum 1. Sternum 1 with median impression deep, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin declivous; 1.03X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apically declivous; 2.00X as long as 3 & 4 together. Sternum 5 flat; basally transversely convex; with cluster of three to four suberect, coarse apicolateral setae; 1.82X as long as 3 & 4 together, 1.00X as long as 2, 0.83X as long as 1. Legs short. Femora subclavate, reddish brown. Tibiae stout, reddish brown; inner margin strongly bisinuate, outer margin slightly arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with conspicuous short bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately slender, shorter than width of tibial apex. Tarsi short, broad, blackish brown; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, broadly cordate, rather deeply emarginate; tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.70 mm.

Female (allotype). Same as male except: rostrum 0.75X as long as pronotum, cylindrical; dorsal curvature strong. Antennae inserted at middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 141). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; widest at orifice, enlarging toward base; extreme apex somewhat elongate, very broadly subacute, angulately explanate, in lateral view slender, evenly and moderately curved, tapering; dorsobasal margin

distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate. Orifice more or less oval, elongate; proximal margin indistinct, not sclerotized. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.24X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Tegmen with cap-piece. Female (fig. 206). Sternum VIII with apical setae numerous, very short, slender; arms slender, apically convergent, not at all basally fused, not apically fused, with inner margins broadly, deeply arcuate, with outer margins broadly arcuate; fenestral area open, broad-oval. Apodemes broadly divergent from apical 1/3, narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by marked emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, slightly convex. Gonocoxae short, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin bluntly rounded; lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The dorsal vestiture is nearly unicolorous in the holotype, whereas in the allotype it is composed of scales of two distinct colors, dark brown and greyish. The greyish scales form a narrow longitudinal median vitta and two narrow oblique and interrupted sublateral vittae on the pronotum, and form maculae on the lateral intervals and on the humeri and the antedeclivital portion of interval 3.

ETYMOLOGICAL NOTE - This species is named in honor of our good friend and colleague Dr. Massimo Meregalli, who collected the holotype of the species.

REMARKS AND COMPARATIVE NOTES - This small species is well-characterized in and out of the group by its robust body and globose elytra, broad frons, small eyes, short legs, and cordate tarsomere 3.

BIOLOGICAL NOTE - This species was collected under a stone at the top of a mountain without waterpools in proximity (Meregalli, pers. comm., 1994).

TYPE LOCALITY - Damal-Ilgar, 2700 m (eastern Anatolia).

NOTES ON TYPE SPECIMENS - Holotype (MMCT): [Turkey] "Anatolia orient., Damal-Ilgar, m 2700, 17.8.1984, Meregalli legit"; allotype (HNHM): "Caucasus oc., Fischt. alp., IX.23, Stark / *Bagous* sp., Coll. Reitter".

RANGE - Eastern Anatolia, western Caucasus.

MATERIAL EXAMINED - We studied only the two type specimens (see above).

Bagous cylindricus group

This group is characterized by: body elongate, subcylindrical (fig. 36); rostrum short, subrectangular, scarcely sexually dimorphic; pronotum distinctly longer than wide (fig. 36); median lobe with a V-shaped ventral process and a U-shaped elongate moveable sclerite (fig. 148); tegmen lacking cap-piece; gonocoxae with very small styli (fig. 212).

This group is composed of one Palearctic species, *B. cylindricus* [for which Neresheimer & Wagner (1932b) created the subgen. *Pseudolyprus*], and at least one Afrotropical species. Presently it appears to be phylogenetically related, although not closely, to the *B. tubulus* and *B. elegans* groups.

57. *Bagous cylindricus* Rosenhauer (figs. 36, 148, 212)

Bagous cylindricus Rosenhauer, 1856: 289. Brisout, 1863: 514. Schilsky, 1907: 51. Hustache, 1927: 127, 133. González, 1967: 99.

Bagous curtirostris Fairmaire, 1873: 349.

REDESCRIPTION - Male. Body medium-sized, elongate-cylindrical, moderately slender. Rostrum short, 0.43X as long as pronotum, black with apex reddish brown, subrectangular; dorsal curvature weak and uneven; ventral curvature straight; moderately depressed in apical 1/2; median basal carina indistinct; basolateral sulcus shallow, broad, short, coarsely punctate; ventral margin angulate, distinctly carinate; sides subparallel, moderately subquadrately expanded in apical 3/4; scales uniformly dense to apex, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.45X as long as head across ocular lobes; scales nongranulate, subcontiguous, pitted, round, gray brown; supraocular setae few, short, indistinct, recumbent, curved, coarse, linearly arranged. Frons broad, 0.67X as wide as head across eyes, weakly convex, not impressed, not set off from rostrum by impression; median fovea shallow, large. Antennae inserted just in front of middle; scape very short, moderately stout, subclavate; scape and funicle dark reddish; funicle short, 1.09X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club short, broad-oval, 0.48X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum elongate, 1.18X as long as broad; subparallel-sided; widest near base; apical constriction weak, in apical 1/6; sides not rounded behind constriction, not impressed somewhat behind round area; median sulcus indistinct, broad, incomplete, forming subapical and subbasal impressions; subbasal impression moderately large, distinct, shallow; apical impression moderately large, distinct, shallow; disc transversely weakly convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales subgranulate, pitted, subcontiguous, round, brownish; with 3 vittae; median vitta moderately broad, interrupted, indefinite, uneven, pale tan; lateral vitta broad, tan-brown; ocular lobes strongly developed, dark reddish. Prosternal sulcus very deep, moderately narrow, subparallel, moderately biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum minute. Elytra subparallel behind humeri to declivity; 1.85X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices subacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 weakly developed, rounded; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, shallow, narrow; punctures minute, scarcely evident, round, narrow, shallow, not wider than strial grooves; scales subgranulate, contiguous to subcontiguous, finely pitted, oval, arranged irregularly, brown and pale tan; maculate; cuticle reddish brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.25X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, slightly narrowed apically, not con-

tinued on sternum 2; apical margin moderately declivous; 1.10X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.48X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; basally flat; median impression shallow, broad, subtriangular; lateral impressions very shallow, elongate, subequal to median impression in depth; with one pair of suberetc, coarse apicolateral setae; 1.12X as long as 3 & 4 together, 0.56X as long as 2, 0.51X as long as 1. Legs moderately long. Femora clavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, distinct, minute, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, subequal to width of tibial apex. Tarsi moderately long, sublinear, reddish brown; tarsomeres 1-3 broadened toward apex; tarsomere 3 slightly wider at apex than 2, subcordate, subemarginate; tarsomeres ventrally with dense short apical pubescence and long bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 4.15 mm.

Female. Same as male except: sternum 1 almost entirely flat.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 148). Median lobe strongly compressed, dorsoventrally flattened; dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided, slightly constricted behind orifice, tapering toward apex; extreme apex elongate, more or less triangular, broadly and uniformly rounded, in lateral view robust, declivous, bluntly rounded, dorsobasal margin distinct, shallowly emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice with proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward and with extreme apex sinuate, 0.17X as long as median lobe. Internal sac without orificial sclerites; with very long and large sclerite complex. Tegmen without cappiece. Female (fig. 212). Sternum VIII with apical setae several, very short, slender; arms slender, apically convergent, with inner margins broadly, shallowly arcuate, with outer margins broadly, shallowly emarginate; fenestral area open, elongate-narrow. Apodemes broadly divergent very near base; broadly separated to near base. Spermatheca with ramus absent; spermathecal gland arising subapically on body; nodulus slightly concave. Gonocoxae very long, slender, tapering toward apex, more or less straight from base to apex; styli minute, indistinct, subapically inserted. Bursa copulatrix simple, without sclerites. Tergum VIII distinctly cordate; apical margin distinctly produced medially, narrowly reflexed, forming distinct lip; apicolaterally slightly swollen; with lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly rounded.

INTRASPECIFIC VARIATION - The elytral pattern is more or less distinct, sometimes nearly uniform. Size range 3.50-4.80 mm.

REMARKS AND COMPARATIVE NOTES - This elongate and slender species can be separated from all the other western Palearctic species with long elytra by the pronotum being distinctly longer than wide and the robust and very short subrectangular rostrum.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Andalusia (Spain).

NOTE ON TYPE SPECIMENS - In the Fairmaire collection (MHNP) we examined one male syntype of *B. cylindricus* labelled "Thiere Andalusiens, Rosenhauer" (lectotype here designated).

SYNONYMIES - Fairmaire described *B. curtirostris* based on specimens from Tanger. In the Fairmaire collection (MHNP) we examined one female syntype labelled " *Bagous curtirostris* Fairm., Tanger / Museum Paris, collection Fairmaire 1906 / Type" (lectotype here designated) and confirm the synonymy of this species with *B. cylindricus*.

RANGE - Southern and central Spain, southern Portugal, Gibraltar, Morocco.

MATERIAL EXAMINED - Apart from the type specimens (see above) 60 nontype specimens. Spain: Hispania, Coll. E. Friv. (1, HNHM); Hispania, Baudi (1, SMTD); Andalusia, 27.IV.1895 (2, SMTD); Andalus., Hffmsgg. (1, SMTD); Estremadura, Queluz (1, SMTD); Jaén (1, SMTD); Madrid, IV.1910, Schatzmayr (1, MSNM); El Pilar, Cuevas S. Marcos, Malaga, 2.VI.1980, M. A. Alonso Zarazaga leg. (1, AZCM); Rota (Cádiz) 15.IV.1972, J. de Ferrer leg. (3, MMCT); San Roque (Cádiz), 14.V.1974, J. de Ferrer leg. (1, MMCT); S. Roque, Cádiz, J. Ramirez leg. (1, MNCN). Gibraltar: Gibraltar / Coll. Reitter (1, CWOB); Gibraltar, J. J. Walker (13, BMNH); Gibraltar, Champion (1, MNHB). Portugal: Portugal, 5.VII.1887 (10, MHNG); Portugal, Queluz, 1910 (1, MNHB). Morocco: Maroc (2, DEIE; 4, MHNG); Morocco, H. Vaucher coll. (3, USNM); Maroc, Sebou, leg. Théry (1, CWOB); Tanger, 1897 (1, MSNM); Tetouan, 1897 (1, MSNM); Tetuan, Morocco, J. J. Walker (8, BMNH).

Bagous tubulus group

This species group is characterized by: body very elongate, cylindrical (figs. 37-39); rostrum cylindrical, narrow, elongate especially in female (figs. 61-62), lacking carinae and/or sulci; elytra nearly as wide as pronotum, lacking calli; median lobe elongate, with sinuate and subparallel sides; apodemes very short, distinctly convergent; sclerites of internal sac composed of basal subtriangular structure with setae and two elongate markedly sinuate sclerites with chela-like basal portion (figs. 142-146); tegmen lacking cap-piece; female sternum VIII with elongate arms, narrow, subparallel, with long apical pili; arms distinctly longer than apodeme; gonocoxae elongate (figs. 209-210).

This group is composed of six Palearctic species, traditionally forming the subgen. *Lyprus*, and presently we do not know any species from other geographical regions belonging to it.

58. *Bagous mingrelicus* Tournier (figs. 38, 76, 144, 209)

Bagous mingrelicus Tournier, 1874: 105.
Bagoimorphus laticollis Desbrochers, 1906: 11 (**n. syn.**).
Bagous syriacus Schilsky, 1907: N; 1908: 71. Hustache, 1927: 129 (**n. syn.**).

REDESCRIPTION - Male. Body medium-sized, elongate-cylindrical, moderately slender. Rostrum moderately short, 0.87X as long as pronotum, black with apex reddish brown, cylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales uniformly dense to apex, not granulate, contiguous,

pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.40X as long as head across ocular lobes; scales subgranulate, subcontiguous, pitted, round, gray brown; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.64X as wide as head across eyes, somewhat flattened, indefinitely shallowly impressed, indistinctly set off from rostrum by shallow impression; not sulcate nor foveate medially. Antennae inserted just behind middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle moderately long, 0.89X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club elongate-oval, 0.58X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.94X as long as broad, weakly rounded rounded from base; apical constriction moderate, in apical 1/5, dorsally distinct and uniform; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely weakly convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales subgranulate, finely pitted to indistinctly pitted, subcontiguous, round, brownish; with 3 vittae; median vitta narrow, complete, indefinite, uneven, pale grayish brown; lateral vitta broad, pale grayish brown; ocular lobes moderately developed, reddish brown. Prosternal sulcus deep, moderately narrow, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.70X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); subequal in width to prothorax; apices subacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous to subcontiguous, finely pitted, round, arranged irregularly, brownish; maculate; cuticle reddish brown. Metathoracic wing rudimentary. Mesosternal process large, subtriangular between coxae. Metasternum 1.16X as long as sternum 1. Sternum 1 with median impression shallow, moderately narrow, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin weakly declivous; 1.50X as long as 2; suture between 1 & 2 sinuate, finely incised medially, deep laterally. Sternum 2 medially impressed, impression narrow, shallow; apically declivous; 1.44X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; lateral impressions shallow, small; with cluster of three to four suberect, coarse apicolateral setae; 1.20X as long as 3 & 4 together, 0.77X as long as 2, 0.48X as long as 1. Legs moderately long. Femora clavate, reddish brown. Tibiae moderately slender, reddish; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, distinct, small, with moderately long bristles; outer surface with short, inconspicuous bristles; uncus moderately long, moderately slender, subequal to width of tibial apex; hind tibiae with 2 small denticles, with 1 or 2 short setae on inner surface. Tarsi moderately long, sublinear,

reddish; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, subcordate, rather deeply emarginate (fig. 76); tarsomeres ventrally with dense short apical pubescence and long bristles, dorsally with several long bristles. Length, pronotum and elytron: 2.95 mm.

Female. Same as male except: rostrum 0.98X as long as pronotum; dorsal curvature uneven; subangulate at antennal insertion; weakly expanded toward apex. Antennae inserted at basal 2/5. Sternum 1 with median impression very shallow, broad, interrupted (basal and apical), flattened in middle 1/3, broader apically, not continued on sternum 2. Sternum 2 convex.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 144). Median lobe strongly compressed, dorsoventrally flattened; dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided and unevenly sinuose, tapering toward apex; extreme apex elongate, slightly subapically constricted, very broadly subacute, in lateral view slender, declivous, tapering; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice with proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward, 0.07X as long as median lobe. Internal sac without orificial sclerites; with very long and large sclerite complex. Female (fig. 209). Sternum VIII with apical setae numerous, very long, slender; arms slender, basally convergent, with inner margins sinuate, with outer margins parallel; fenestral area open, elongate-narrow. Apodemes slightly divergent at extreme apex only; narrowly separated to base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, with outline almost uniformly continuous with body; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly convex. Gonocoxae very long, slender, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; apical margin somewhat produced medially; apicolaterally slightly swollen; with lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - Sometimes the vestiture can be nearly unicolorous brown to greyish. The sides of the pronotum and elytra are more or less rounded. Sometimes the scales are arranged in two nearly regular rows on intervals 1 and 2. Size range 2.30-3.80 mm.

REMARKS AND COMPARATIVE NOTES - Due to the shape of the tarsi with tarsomere 3 triangular and wider than tarsomere 2, this species may be confused only with the closely related *B. henoni* from Algeria (see key and remarks of this species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Mingrelia (Caucasian region, presently part of Georgia).

NOTE ON TYPE SPECIMENS - In the Tournier collection (MHNP) we examined one male syntype labelled "Mengrelie, T. Deyr. / Type" (lectotype here designated).

SYNONYMIES - According to the original description, *Bagoimorphus laticollis* was described based on a series of specimens, probably only females, from "Asie Mineure". In the Desbrochers collection (MHNP) we found one female syntype labelled "As. m. / Asie Mineure, ex coll. Bonnaire, det. Desbrochers / *Bagoimorp. laticollis* m." (lectotype here designated).

Another female in the Desbrochers collection (MHNP) is under the label " *amplicollis* " and is labelled "As. min. / *B. amplicollis* (m.) a décr. / type". It might be another syntype. Moreover, at DEIE we examined two female syntypes of *Bagous syriacus*, described based on four females from Syria, labelled "Syrien / coll. Stirlin / Schilsky revided / Syntypus / *Lyprus syriacus* m. n. sp." (lectotype here designated) and "Syria / coll. Stierlin / Schilsky revided / Syntypus" respectively. Apart from the sexual dimorphism and the larger size (3.60 vs. 2.45 mm) these specimens do not show other differences from the lectotype of *B. mingrelicus*.

RANGE - Greece (Macedonia), southern Russia (Caucasus), Anatolia, Middle East.

MATERIAL EXAMINED - Apart from the type specimens (see above) 14 nontype specimens. Greece: Vodena (Macedonien), A. Schatzmayr (1, MSNM); Russia: N. Caucasus, Krasnodarskij Kraj, 10 km NW Dzhubgi, Inal bay, 23-24.05.1985, Korotyaev leg. (3, IZSP); 3 km N Novarossijsk, 30.IV.80, Korotyaev leg. (2, IZSP); Turkey: Adana, ex Desbr., *B. amplicollis* m. n. sp. (1, MHNP); Mersina / 87 / Type / *B.* n. sp. XX / *B. robustus* Pic (1, MHNP); Sinop dint., 2.VI.1969 / Turchia, leg. Osella (1, GOCA); Syria: Syrie (2, MHNP); Israel: Jerusalem, Reitter (1, HNHM); Palestine, Mikve Israel, 1931, F. S. Bodenheimer (2, BMNH).

59. *Bagous henoni* Hustache (figs. 77, 145)

Bagous henoni Hustache, 1927: 125, 128.

REDESCRIPTION - Same as *B. mingrelicus* except: rostrum moderately long, 0.93X as long as pronotum, reddish brown; dorsal curvature weak. Pronotum with sides subparallel, weakly expanding from base; disc nearly flat. Elytra 1.91X as long as wide; disc area nearly flat; disc weakly transversely angulately impressed across basal 1/3; confluence of intervals 3 and 9 distinctly swollen. Sternum 1 with median impression shallow, narrow, subtriangular. Tarsomere 3 slightly wider at apex than 2 (fig. 77). Length, pronotum and elytron: 3.60 mm. Genitalia. Median lobe tapering toward base, not sinuate; extreme apex distinctly subapically constricted, angulately explanate, in lateral view markedly curved. Apodemes short, 0.12X as long as median lobe (fig. 145).

Female. Unknown.

INTRASPECIFIC VARIATION - We know of only one specimen of this species.

REMARKS AND COMPARATIVE NOTES - *Bagous henoni* apparently is the only African species of the group. It is closely related to *B. mingrelicus* from which it differs only in the pronotum with the sides subrectilinear in the basal 1/2, tarsomere 3 slightly narrower than tarsomere 2, and in the different shape of the median lobe.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Bône (Algeria).

NOTE ON TYPE SPECIMENS - This species was described based on a single specimen in the Bedel collection and collected at Bône (leg. Hénon), presently lacking in both the Bedel and Hustache collections (MHNP). However, in the Hoffmann collection (MHNP) we found one male labelled "Bône / coll. Bonnaire / *Bagous Henoni* Hust., comparè aux types in coll. Bedel" corresponding perfectly to the original description. At the moment this remains the only specimen of *B. henoni* which we know.

RANGE - Presently only known from the type locality (Bône, Algeria).

MATERIAL EXAMINED - 1 nontype specimen (see above). Algeria: Bône, coll. Fairmaire (1, MHNP).

60. *Bagous leonhardi* Schilsky (fig. 142)

Bagous leonhardi Schilsky, 1907: O; 1908: 70.

REDESCRIPTION - Male. Body medium-sized, elongate-cylindrical, moderately slender. Rostrum moderately short, 0.80X as long as pronotum, black with apex reddish brown, cylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, subgranulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.40X as long as head across ocular lobes; scales granulate, subcontiguous, pitted and not pitted, round, gray brown; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.64X as wide as head across eyes, weakly convex, not impressed, not set off from rostrum by impression; not sulcate nor foveate medially. Antennae inserted just behind middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle long, 0.96X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club elongate-oval, 0.67X as long as funicle, black, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.89X as long as broad; moderately rounded, moderately expanding from base; apical constriction moderate, in apical 1/5; sides moderately rounded behind constriction, sides not impressed somewhat behind round area; median sulcus lacking; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales granulate, pitted, subcontiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, indefinite, uneven, pale grayish brown; lateral vitta broad, pale grayish brown; ocular lobes moderately developed, dark reddish. Prosternal sulcus moderately deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.83X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); subequal in width to pronotum; apices subacuminate, conjointly rounded; humeri moderately developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, round, narrow, moderately deep, not wider than strial grooves; scales granulate, subcontiguous, finely pitted, round, arranged irregularly, brown and grayish white; maculate; humeri with pale whitish brown macula; antedeclivital area of interval 3 with grayish white macula; declivital area of interval 5 with grayish white macula; cuticle reddish brown. Metathoracic wing rudimentary. Mesosternal process small, subtriangular between coxae. Metasternum 1.07X as long as sternum 1. Sternum 1 with median impression shallow, moderately narrow, continuous for entire length, not deeper and slightly narrowed apically, continued shallowly on sternum 2; apical margin weakly declivous; 1.46X as long as 2; suture between 1 & 2 sinuate, finely incised medially,

deep laterally. Sternum 2 medially impressed, impression narrow, shallow; apical 2/5 declivous; 1.55X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; lateral impressions shallow, small; with cluster of three to four suberect, coarse apicolateral setae; 1.22X as long as 3 & 4 together, 0.78X as long as 2, 0.56X as long as 1. Legs moderately long. Femora clavate, dark reddish. Tibiae moderately slender, reddish; inner margin weakly bisinuate, outer margin slightly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, indistinct, minute, with moderately long bristles; outer surface with short, inconspicuous bristles; uncus moderately long, moderately slender, subequal to width of tibial apex; hind tibiae with 2 small denticles. Tarsi long, sublinear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with several long bristles. Length, pronotum and elytron: 2.40 mm.

Female. Same as male except: rostrum 0.90X as long as pronotum. Sternum 1 with median impression very shallow, basal only, not continued on sternum 2; flattened in apical 2/3. Sternum 2 convex. Sternum 5 flat, lacking evident impressions. Length, pronotum and elytron: 2.70 mm.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 142). Median lobe strongly compressed, dorsoventrally flattened; dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided and unevenly sinuate, tapering toward apex and base; extreme apex not elongate, subtruncate, very bluntly rounded,in lateral view slender, strongly curved, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, 1/4 length of median lobe, with proximal margin distinct, arcuate. Orifice with proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward, 0.08X as long as median lobe. Internal sac without orificial sclerites; with very long and large sclerite complex.

Female. Same as *B. mingrelicus* (fig. 209).

INTRASPECIFIC VARIATION - The vestiture can be nearly unicolorous, brown to greyish. Sometimes the scales are arranged in two nearly regular rows on intervals 1 and 2. The sides of the pronotum and elytra are more or less rounded. Size range 2.80-3.30 mm.

REMARKS AND COMPARATIVE NOTES - Schilsky wrote that *B. leonhardi* differs from *B. minutus* by its larger size, the elytra wider than the pronotum, and the elongate-oval body (not cylindrical) with distinct humeri. We also observed these differences between the lectotypes of the two species, which share a similar shape of the genitalia. For this reason, and since we could not examine large series, we continue to retain the two species as taxonomically valid. There is the possibility that the two taxa, which moreover may live together, may belong to a single species and that the reported differences are due to intraspecific variability.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Derbent (southern Russia).

NOTE ON TYPE SPECIMENS - This species was described based on one male from Derbent and one female from Sarepta. We examined these two syntypes labelled respectively “Derbent / Coll. Tischer / Paratypus / *Leonhardi* Schils. / *leonhardi* Schilsky, Dieckmann det. 1971”

(Schilsky collection, MNHB, lectotype here designated) and "Female / Sarepta / coll. Stierlin / Schilsky revided / Syntypus / *B. diglyptus* Schh. / *Lyprus Leonhardi* m. n. sp. female, type" (DEIE).

RANGE - Caucasus, southern Russia.

MATERIAL EXAMINED - Apart from the type specimens (see above) 17 nontype specimens. Azerbajdzan: Azerbaijan, Kumbashi, small bay near Lenkoran (3, IZSP); Azerb. Lenkoran, Leder (Reitter), globulicollis Faust i.l. (3, HNHM); Kasp. Meer-Geb. Lenkoran, 1897, Korb (1, DEIE; 1, HNHM); Caucase (1, MHNP); Russia: Derbent, Komarov (5, SMTD); Krasnodar, small forest S of Enem, Korotyaev, 4.V.1981 (3, IZSP).

61. *Bagous minutus* Hochhut

Bagous minutus Hochhut, 1847: 573. Schilsky, 1907: 44.
Bagous hochhuti Tournier, 1874: 110 (*hochhuthi* err.). Schilsky, 1907: 44, 55.
Bagous caucasicus Faust, 1887: 85. Reitter, 1887: 225. Schilsky, 1907: 44, 55.

REDESCRIPTION - Same as *B. leonhardi* except: elytra with humeri poorly developed.

INTRASPECIFIC VARIATION - The only four specimens of the species examined did not show noteworthy differences apart from sexual dimorphism.

REMARKS AND COMPARATIVE NOTES - This species appears very closely related to *B. leonhardi* which might be only a variety. The differences between the two taxa are very slight (see remarks of *B. leonhardi*), and might be due only to the small size of *B. minutus*. In fact we observed nearly the same differences between small and large specimens of *B. tubulus*. *Bagous minutus* is also related to *B. tubulus* (see key to species).

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Caucasus (without further detail).

NOTE ON TYPE SPECIMENS - This species was described based on specimens from Caucasus. At the DEIE we examined one male syntype labelled "Caucasus / Coll. Stierlin / vielleicht Type / *B. minutus* Hochh., Hochh. / Schilsky revided" (lectotype here designated).

SYNONYMIES - Both *B. hochhuti* and *B. caucasicus* are unjustified replacement names, because they were proposed erroneously for the senior homonym, *B. minutus* Hochhut, 1843, instead of the junior homonym, *B. minutus* Mulsant, 1851 (Reitter, 1887. Schilsky, 1907).

RANGE - Caucasus.

MATERIAL EXAMINED - Apart from the type specimen (see above) 3 nontype specimens. Caucasus: Caucasus, 1897 (1, HNHM); Kaukas., O. Schneider (2, MNHB).

62. *Bagous tubulus* Caldara & O'Brien (figs. 37, 61, 78, 143)

Bagous tubulus Caldara & O'Brien, 1994: 3.
Curculio cylindrus Paykull, 1800: 241 (not Fabricius, 1781).
Rhynchaenus cylindrus (Paykull), Gyllenhal, 1813: 78.
Lyprus cylindrus (Paykull), Gyllenhal, 1836: 56. Sharp, 1917b: 100.
Bagous cylindrus (Paykull), Brisout, 1863: 497. Thomson, 1865: 181. Schilsky, 1907: 43. Hustache, 1930: 206, 217. Hoffmann, 1954: 721. Dieckmann, 1964a: 91, 99; 1983: 358. Lohse, 1983: 48. Tempère & Péricart, 1989: 166.
Lixus attenuatus Ahrens, 1812: 18 (not Fabricius, 1801).
Bagous angustus Silfverberg, 1977: 17 (not Tanner, 1954).

REDESCRIPTION - Male. Body medium-sized, elongate-cylindrical, slender. Rostrum moderately short, 0.83X as long as pronotum, black with apex reddish brown. cylindrical; dorsal curvature moderate and uneven; ventral curvature weak and even; subangulate at antennal insertion; ventral margin not angulate, not carinate; sides subparallel, weakly expanding in apical 1/3; scales dense in basal 2/3, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.39X as long as head across ocular lobes; scales subgranulate, subcontiguous, pitted, round, gray brown; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.67X as wide as head across eyes, weakly convex, not impressed, not set off from rostrum by impression; not sulcate nor foveate medially. Antennae inserted at basal 2/5; scape short, moderately slender, subclavate; scape and funicle reddish brown; funicle long, 1.27X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.61X as long as funicle, black, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.97X as long as broad; weakly rounded, weakly expanding from base; apical constriction weak, in apical 1/6, dorsally shallower medially; sides moderately rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales subgranulate, pitted, subcontiguous, round, brownish; with 3 vittae; median vitta narrow, complete, indefinite, uneven, pale grayish brown; lateral vitta broad, pale grayish brown; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately deep, moderately broad, subparallel, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) strongly acute. Scutellum small. Elytra subparallel behind humeri to declivity; 2.15X as long as wide; disc area strongly convex; declivity at 60 degrees (in relation to dorsal plane); subequal in width to pronotum; apices subacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, subrecumbent, curled, coarse, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 weakly developed, rounded; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, shallow, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous to subcontiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; humeri with macula pale whitish brown; antedeclivital area of interval 3 with macula grayish white; declivital callus of interval 5 with macula grayish white; cuticle dark brown. Metathoracic wing rudimentary. Mesosternal process large, subtriangular between coxae. Metasternum 1.05X as long as sternum 1. Sternum 1 with median impression moderately shallow, moderately narrow, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.50X as long as 2; suture between 1 & 2 straight, finely incised medially, deep laterally. Sternum 2 flattened; apical margin moderately declivous; 1.79X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; with apicomedian and basal area flat; lateral impressions very shallow, small; with cluster of three to four suberect, coarse apicolateral setae;

1.40X as long as 3 & 4 together, 0.79X as long as 2, 0.50X as long as 1. Legs moderately long. Femora clavate, reddish black. Tibiae moderately slender, reddish; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, distinct, small, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, subequal to width of tibial apex; hind tibiae with 2 small denticles, with 1 or 2 short setae on inner surface. Tarsi long, sublinear, dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate (fig. 78); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with several long bristles. Length, pronotum and elytron: 3.20 mm.

Female. Same as male except: rostrum 0.93X as long as pronotum (fig. 61). Antennae inserted just behind middle. Sternum 1 with median impression basal only, flattened in apical 2/3, impression very shallow. Sternum 2 convex. Sternum 5 flat, lacking evident impressions. Length, pronotum and elytron: 3.05 mm.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 143). Median lobe strongly compressed, dorsoventrally flattened; dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided and unevenly sinuate, slightly constricted behind orifice, tapering toward apex; extreme apex elongate, subtruncate, very bluntly rounded, in lateral view slender, declivous, tapering; dorsobasal margin distinct, shallowly emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice with proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward, 0.08X as long as median lobe. Internal sac without orificial sclerites; with very large sclerite complex. Female. Same as *B. mingrelicus* (fig. 209).

INTRASPECIFIC VARIATION - The size as well as the length of the body and especially of the elytra are markedly variable. The sides of both the pronotum and elytra vary moderately in curvature. The vestiture may be nearly unicolorous, brownish to greyish. Size range 2.80-3.50 mm.

REMARKS AND COMPARATIVE NOTES - Due to the linear tarsi, this species may be confused only with *B. leonhardi* and *B. minutus* from which it is distinguishable mainly by the shape of the median lobe apart from minimal external differences (see key to the species).

BIOLOGICAL NOTE - This species lives on *Glyceria plicata* Fr., *G. fluitans* L., *Alopecurus fulvus* Sm. and in the laboratory also on *Dactylis glomerata* L.. On these plants it makes incomplete holes leaving the epidermis intact. *Bagous tubulus* swims slowly and can stay underwater for a long time. Vincent and Péricart collected *B. tubulus* in large series on *Callitriche* sp. at the edge of the pool of Plantay (Ain, France) (Tempère & Péricart, 1989).

TYPE LOCALITY - Scania (Sweden).

NOTE ON TYPE SPECIMENS - We did not examine specimens belonging to the type series.

SYNONYMIES - The binomials *Lixus attenuatus*, *Curculio cylindrus* and *Bagous angustus* are not available due to primary homonymies (for more details see Caldara & O'Brien, 1995).

RANGE - Northern and central Europe, France, northern Italy, Romania, Turkey.

MATERIAL EXAMINED - We examined about 100 nontype specimens from Poland, Hungary, Slovakia, Germany, Austria, France, northern Italy, Romania and Turkey.

63. *Bagous frivaldszkyi* Tournier (figs. 39, 62, 79, 146, 210)

Bagous frivaldszkyi Tournier, 1874: 104. Schilsky, 1907: 42. Dieckmann, 1964a: 91; 1983: 357, 358. Lohse, 1983: 49.

REDESCRIPTION - Male. Body medium-sized, elongate-cylindrical, slender. Rostrum short, 0.61X as long as pronotum. black, cylindrical; dorsal curvature moderate and uneven; ventral curvature straight; ventral margin not angulate, not carinate; sides subparallel, slightly widened at antennal insertion and slightly narrowing to apex; scales dense in basal 1/2, not granulate, contiguous, pitted, round, whitish gray. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes moderately convex, small, 0.41X as long as head across ocular lobes; scales subgranulate, contiguous, pitted, round, whitish gray; supraocular setae few, short, indistinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.67X as wide as head across eyes, somewhat flattened, not impressed, indistinctly set off from rostrum by shallow impression; not sulcate nor foveate medially. Antennae inserted at basal 2/5; scape short, moderately slender, subclavate; scape and funicle dark reddish; funicle long, 1.38X as long as scape, segment 1 stout, 2 slender and shorter than 1, 3-6 short, 7 strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.49X as long as funicle, black, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum elongate, 1.10X as long as broad; unevenly subparallel-sided; apical constriction moderate, in apical 1/6, dorsally shallower medially; sides weakly rounded behind constriction, not impressed somewhat behind round area; median sulcus lacking; disc transversely moderately convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales subgranulate and rugulose, finely pitted to not pitted, contiguous, round, dark gray-brown; with 3 vittae; median vitta moderately broad, complete, indefinite, uneven, pale grayish brown; lateral vitta broad, pale grayish brown; ocular lobes moderately developed, reddish black. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 2.11X as long as wide; disc area strongly convex; declivity at 60 degrees (in relation to dorsal plane); subequal in width to pronotum; apices subacuminate, conjointly rounded; humeri poorly developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, subrecumbent, curled, coarse, pale whitish; intervals 3-5 on disc slightly sinuately-sided; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, shallow, narrow; punctures small, moderately elongate, narrow, moderately deep to well separated, not wider than strial grooves; scales subgranulate, contiguous, finely pitted to not pitted, round, arranged irregularly, usually with 3 or more scales across intervals, brownish; maculate; cuticle blackish brown. Metathoracic wing rudimentary. Mesosternal process small, subtriangular between coxae. Metasternum 1.12X as long as sternum 1. Sternum 1 with median impression moderately deep, moderately narrow, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin moderately declivous; 1.25X as long as 2; suture between 1 & 2 sinuate, narrowly fused medially, deep laterally. Sternum 2 flattened; apical 2/5 declivous; 2.05X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral

impressions; apicomedian and basal area flat; lateral impressions very shallow, small; with cluster of three to four suberect, coarse apicolateral setae; 1.25X as long as 3 & 4 together, 0.68X as long as 2, 0.56X as long as 1. Legs long. Femora subclavate, black. Tibiae moderately slender, reddish black; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, distinct, small, with moderately long bristles; outer surface with short, conspicuous bristles; uncus moderately long, moderately slender, subequal to width of tibial apex; hind tibiae with 2 small denticles, with 1 or 2 short setae on inner surface. Tarsi long, linear, dark brown; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subtruncate (fig. 79); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with several long bristles. Length, pronotum and elytron: 3.50 mm.

Female. Same as male except: rostrum 0.67X as long as pronotum (fig. 62); ventral curvature weak and even; weakly expanded toward apex. Antennae inserted at basal 1/3. Sternum 1 with median impression very shallow, moderately narrow. Sternum 2 convex; apically declivous. Sternum 5 flat.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 146). Median lobe strongly compressed, dorsoventrally flattened; dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided and unevenly sinuose, tapering toward apex; extreme apex elongate, broadly and uniformly rounded, distinctly subapically constricted, explanate, in lateral view robust, evenly and moderately curved, bluntly rounded; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice with proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward, 0.12X as long as median lobe. Internal sac without orificial sclerites; with very long and large sclerite complex. Female. Same as *B. mingrelicus* (fig. 209) except: gonocoxae very long, slender (fig. 210). Pygidium with apex truncate.

INTRASPECIFIC VARIATION - This species is markedly variable in the length of the body and especially of the elytra. The vestiture may be nearly unicolorous, brownish to greyish. Size range 3.50-4.25 mm.

REMARKS AND COMPARATIVE NOTES - This species is easily distinguished from the other species of the group by the narrower pronotum with the sides rectilinear in the basal 2/3 and widest at the apical 1/3, and the rostrum straight in the apical 1/2 in lateral view.

BIOLOGICAL NOTE - The host species is unknown. *Bagous frivaldszkyi* was collected mainly on the muddy sides of pools on warm and sultry days.

TYPE LOCALITY - Hungary (without further detail).

NOTE ON TYPE SPECIMENS - This species was described based on two specimens which we did not examine.

RANGE - Central and eastern Europe (Poland, Germany, Czech Republic, Slovakia, Hungary, Romania).

MATERIAL EXAMINED - We studied 46 specimens from Poland, Germany and Hungary.

Bagous elegans group

This group is characterized by: body large, elongate-cylindrical; rostrum long; antennae long, funicular segment 2 markedly longer than segment 1; pronotum slightly undulate, with numerous short suberect curled setae; elytra elongate, covered with partly imbricate, rounded to semilunate scales, forming vittate pattern; odd-numbered intervals distinctly more convex than even-numbered intervals; confluence of intervals 3 and 9 markedly raised, forming long posteriorly-projecting process; legs long; median lobe elongate, with sinuate and subparallel sides; apodemes very short, distinctly convergent; sclerites of internal sac composed of basal subtriangular structure with setae and two elongate markedly sinuate sclerites with chela-like basal portion (fig. 147); tegmen lacking cup-piece; female sternum VIII with elongate arms, narrow, subparallel, with long apical pili, arms distinctly longer than apodeme; gonocoxae elongate (fig. 211).

This group, formed by two distinctive and very closely related Palearctic species, was treated previously as a separate genus (*Dicranthus*, see Kodada et al., 1992 for revision) on the basis of several autapomorphies. However, the phylogenetic analysis of the male and the female genitalia clearly supports the hypothesis of paraphyly of this genus and monophyly of this species group, because of its close relationship with the *B. tubulus* group (sister group).

64. *Bagous elegans* (Fabricius) (fig. 211)

Lixus elegans Fabricius, 1801: 491.
Bagous elegans (Fabricius), Schönherr, 1845: 74.
Anactodes elegans (Fabricius), Brisout, 1863: 496.
Dicranthus elegans (Fabricius), Brauns, 1891: 107. Schilsky, 1907: 41. Reitter, 1916: 209. Hoffmann, 1954: 712. Poot, 1972: 188. Dieckmann, 1983: 351, 352. Lohse, 1983: 46. Messmer & Dieckmann, 1987: 115. Kodada et al. 1992: 197.
Dicranthus vittatus Motschulsky, 1845: 102. Kodada et al., 1992: 197.

REDESCRIPTION - Male. Body large, elongate-cylindrical, slender. Rostrum long, 1.20X as long as pronotum, reddish brown, cylindrical; dorsal curvature weak and even; ventral curvature weak and even; not more distinctly depressed toward apex; basal median carina moderately indistinct; ventral margin not angulate, not carinate; sides parallel, moderately expanding in apical 1/3; scales uniformly dense to apex, not granulate, contiguous, pitted, round to oval, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.42X as long as head across ocular lobes; scales nongranulate, contiguous to imbricate, pitted, round, brownish; supraocular setae few, short, distinct, suberect to subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.64X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, moderately distinctly set off from rostrum by shallow median impression; median fovea deep, small. Antennae inserted at basal 2/5; scape moderately long, slender, subclavate; scape and funicle reddish; funicle long, 1.12X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club elongate-oval, 0.37X as long as funicle, dark reddish, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum elongate, 1.03X as long as broad; parallel-sided, very weakly expanding from base; apical constriction strong, in apical 1/5, dorsally distinct and uniform; sides strongly angulate behind constriction, deeply impressed behind angulate process; median sulcus lacking; disc transversely weakly

convex, not rugose or rugulose; apical and marginal setae numerous, moderately distinct, short, subrecumbent, curved, fine; scales flattened, coarsely pitted, contiguous, round, blackish brown; with 3 vittae; median vitta narrow, complete, distinct, straight, pale tan; lateral vitta broad, tan-brown; ocular lobes moderately developed, dark reddish. Prosternal sulcus moderately deep, moderately narrow, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 2.50X as long as wide across humeri; disc area flat; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices acuminate, conjointly strongly emarginate; humeri poorly developed, weakly obliquely angulate; even-numbered intervals moderately convex; odd-numbered intervals slightly more convex and elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 very well-developed, posterolaterally projecting; confluence of intervals 3 and 9 strongly raised, forming long posteriorly-projecting process; strial grooves distinct, moderately deep, narrow; punctures medium-sized, round, narrow, moderately deep, slightly wider than strial grooves; scales nongranulate, imbricate, not pitted, sublunate, distinctly emarginate to indefinitely shaped, arranged irregularly, black and grayish brown; vittate, with intervals 2, 4 and 6 dark from base to apex; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process small, triangular, very narrow between coxae. Metasternum 0.92X as long as sternum 1. Sternum 1 with median impression moderately deep, moderately narrow, Sternum 1 with median impression continuous for entire length, not deeper and not narrowed apically, continued shallowly on sternum 2; apical margin moderately declivous; 1.33X as long as 2; suture between 1 & 2 sinuate, finely incised medially, deep laterally. Sternum 2 medially impressed, impression narrow, shallow; apical 2/5 declivous; 1.77X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; lateral impressions shallow, large; with cluster of three to four erect, coarse apicolateral setae; 1.23X as long as 3 & 4 together, 0.70X as long as 2, 0.54X as long as 1. Legs long. Femora subclavate, reddish black. Tibiae slender, reddish; inner margin weakly bisinuate, outer margin slightly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, distinct, small, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus long, moderately slender, as long as width of tibial apex; hind tibiae with 3 small denticles. Tarsi long, linear, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subtruncate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with several long bristles. Length, pronotum and elytron: 5.75 mm.

Female. Same as male except: rostrum 1.25X as long as pronotum. Sternum 5 with median subapical and pair of subbasal lateral impressions; median impression shallow, broad, triangular; lateral impression shallow, large, subequal to median impression in depth.

GENITALIA AND ASSOCIATED STRUCTURES - Male. Median lobe strongly compressed, dorsoventrally flattened; dorsal surface excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided, tapering toward apex; extreme apex elongate, more or less triangular, subacute, narrowly rounded, explanate, in lateral view slender, evenly and moderately curved, acute; dorsobasal margin distinct, deeply emarginate; ventrobasal

margin distinct, deeply emarginate; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice short, slightly enlarging apparent orifice, with proximal margin distinct, arcuate. Orifice with proximal margin indistinct, not sclerotized. Apodemes very short, curving strongly inward, 0.13X as long as median lobe. Internal sac without orificial sclerites; with very long and large sclerite complex. Female (fig. 211). Sternum VIII with apical setae numerous, very long, slender; arms moderately slender, basally convergent, with inner margins sinuate, with outer margins parallel; fenestral area open, elongate-narrow. Apodemes slightly divergent at extreme apex only; narrowly separated to base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, with outline almost uniformly continuous with body; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly convex. Gonocoxae very long, slender. Bursa copulatrix simple, without sclerites. Tergum VIII distinctly cordate; apical margin distinctly produced medially, narrowly reflexed, forming distinct lip and broad, subapical transverse furrow; apicolaterally distinctly swollen. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - There is marked variation in the size of the species (range 4.50-8.90 mm). The elytral apical projection and the declivital callus of interval 5 vary moderately in prominence.

REMARKS AND COMPARATIVE NOTES - As already reported by Kodada et al. (1992), *B. elegans* differs from *B. majzlani* by the intervals 2, 4 and 6 dark from base to apex, the process of confluence of intervals 3 and 9 longer (about 2.5X longer than wide), the elytra longer (2.50-2.60X longer than wide), the pronotum slightly longer than wide, the presence of apical emargination of the wing, the longer and narrower endophallic sclerite complex, the tegmen with longer apodeme, the spermatheca with indistinct ramus, and the chromosome morphology.

BIOLOGICAL NOTE - This species is monophagous on *Phragmites australis* (Cav.) Trin. and the larva develops and pupates quite rapidly in the internodes of the stalk below water level. The adult emerges by biting a round hole in the wall of the stalk between the nodes (Browns, 1891; Poot, 1972) and copulates before overwintering on the shore.

TYPE LOCALITY - Germany (without further detail).

NOTE ON TYPE SPECIMENS - Kodada et al. (1992) examined one female syntype without locality data (ZMUK) and designated it as lectotype.

SYNONYMIES - Kodada et al. (1992) examined two female syntypes of *B. vittatus* from the Steppe of Kirghizia (PIMR), one of which was designated as lectotype by them, and they confirmed its synonymy with *B. elegans*.

RANGE - Northern (Denmark, Poland, Russia), central (France, Holland, Germany, Hungary) and southern (Romania) Europe, central Asia (Kazakhstan, Tadzhikistan, Kirgizistan).

MATERIAL EXAMINED - We studied 36 nontype specimens from France, Holland, Germany, Poland.

65. *Bagous majzlani* (Kodada, Holecová & Behne) **(n. comb.)** (fig. 147).
Dicranthus majzlani Kodada, Holecová & Behne, 1992, 62: 208.

REDESCRIPTION - Same as *B. elegans* except: pronotum weakly transverse, 0.95X as long as wide. Elytra 2.30X as long as wide; confluence of intervals 3 and 9 markedly raised, forming

moderately long posteriorly-projecting process; intervals 2, 4 and 6 dark at most in basal 2/3. Genitalia. Male (fig. 147). Median lobe with internal sac with longer sclerite complex. Female. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct.

INTRASPECIFIC VARIATION - This species presents marked variation in size (range 4.20-9.70 mm). The prominence of the elytral apical projection and the declivital callus of interval 5 vary slightly.

REMARKS AND COMPARATIVE NOTES - Our redescription adds many feature of the species not reported in the original description and useful to relate the species with other species of *Bagous*. The differences between *B. majzlani* and *B. elegans* were carefully reported by Kodada et al. (1992) (see our key to the species and remarks to *B. elegans*), who also found differences in the wing (e.g. lack of apical emargination) and in the chromosome morphology.

BIOLOGICAL NOTE - Kodada et al. (1992) collected the species on large growth of *Glyceria maxima* (Hart.) Holm., in the moister part of which the adult hibernates. They also were observed copulating under water on submerged stalks of this plant.

TYPE LOCALITY - Leles (southeastern Slovakia).

NOTE ON TYPE SPECIMENS - We examined 18 paratypes from Holland, Poland, Hungary, Slovakia, Germany, and Italy (BMNH, MHNP, MSNM, RCCM).

RANGE - Northern, central and southeastern Europe (Poland, southern Russia, Germany, Holland, Slovakia, Hungary, northern Italy, Romania).

MATERIAL EXAMINED - Apart from the paratypes (see above) 3 nontype specimens. Poland: Silesie (1, MHNP); Silesie, Kraatz (1, MHNP). Hungary: Sud Hungarn (1, MHNP).

Bagous nodulosus group

This species group is characterized by: declivital callus of interval 5 very well-developed; tibiae long, distinctly apically curved and with distinct denticles; tarsi elongate, linear; median lobe elongate with sides convergent from base to apex, with ventrobasal margin truncate; dorsal process very high and composed of pair of very elongate sclerotized pieces, in dorsal view sinuate and joined at base with two small V-shaped vertical orificial sclerites and with membrane from dorsal process to proximal margin of orifice; dorsal margin in lateral view markedly concave at level of dorsal process (fig. 162); female sternum VIII with elongate parallel arms (fig. 213).

Presently this group includes only *B. nodulosus*, which is widespread largely in the western Palearctic region. By the shape of the male genitalia we hypothesize that this group is the sister group of the *B. validus* group.

66. *Bagous nodulosus* Gyllenhal (figs. 40, 162, 213)

Bagous nodulosus Gyllenhal, 1836: 538. Brisout, 1863: 502. Schilsky, 1907: 65. Sharp, 1917b: 103. Hustache, 1930: 208, 230. Hoffmann, 1954: 725, 737. Dieckmann, 1964a: 93, 100.; 198. 359, 363. Lohse, 1983: 50.

REDESCRIPTION - Male. Body medium-sized, broad-oval, robust. Rostrum moderately short, 0.75X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral sulcus scar-

cely evident, broad, long, coarsely punctate; ventral margin angulate, distinctly carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.40X as long as head across ocular lobes; scales nongranulate, contiguous, coarsely pitted, round, brownish; supraocular setae few, short, indistinct, subrecumbent, curved, slender, linearly arranged. Frons broad, 0.67X as wide as head across eyes, weakly convex, shallowly impressed, moderately distinctly set off from rostrum by shallow median impression; median fovea shallow, large. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle moderately short, 0.86X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.62X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.93X as long as broad; sinuately subparallel-sided; apical constriction strong, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, slightly impressed behind round area; median sulcus indistinct, narrow, incomplete, forming small, weak, shallow apical impression; disc transversely unevenly flattened, weakly undulate, not rugose or rugulose; apical and marginal setae few, moderately distinct, short, subrecumbent, curved, fine; scales nongranulate, finely pitted, subcontiguous, round, pale tan; lacking vittae; ocular lobes moderately developed, reddish brown. Prosternal sulcus very deep, moderately broad, weakly narrowed at apical constriction, biangulate; side margins sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.50X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate, subacute, somewhat produced; even-numbered intervals flattened; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc strongly sinuately-sided; antedeclivital swelling of interval 3 weakly developed, scarcely evident; declivital callus of interval 5 very well-developed, acute; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, shallow, narrow; punctures medium-sized, moderately elongate, broad, moderately shallow, wider than strial grooves; scales nongranulate, subcontiguous, finely pitted, round, arranged irregularly, gray, grayish brown, and grayish white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula white; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.16X as long as sternum 1. Sternum 1 with median impression moderately deep, broad, continuous for entire length, deeper and not narrowed apically, not continued on sternum 2; apical margin moderately declivous; 1.24X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 2.09X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; basally flat; median impression very shallow, broad, subtriangular, lateral impressions very shallow, large, subequal to median impression in depth; with cluster of three to four suberect, coarse apicolateral setae; 1.19X as long as 3 & 4 together, 0.57X as long as 2, 0.61X as long as 1. Legs moderately long. Femora subclavate, black.

Tibiae moderately slender, reddish black; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); with apices not narrowed; inner surface with denticles several, distinct, small, with conspicuous short bristles; outer surface with short, conspicuous bristles; uncus moderately long, moderately slender, as long as width of tibial apex; hind tibiae with three denticles and three setae on inner surface. Tarsi long, sublinear, reddish brown; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 4.45 mm.

Female. Same as male except: rostrum 0.78X as long as pronotum. Sternum 1 with median impression moderately narrow, interrupted (basal and apical), flattened in middle 1/2; apical margin not declivous.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 162). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; markedly broadest basally, tapering toward apex; extreme apex elongate, very broadly subacute, explanate, in lateral view slender, evenly and moderately curved, tapering; post-orificial dorsal process directed vertically, without evident setal brush; inner surface of dorsal process simple; dorsal surface behind dorsal process with broad, deep depression; lateral margin behind dorsal process markedly acute; dorsal surface behind dorsal process membranous in broad oval area; dorsobasal margin distinct, deeply emarginate; ventrobasal margin indistinct, truncate; ventrobasally medially depressed, with dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice large, 1/2 more length of median lobe, with proximal margin distinct, arcuate. Orifice triangular; proximal margin concealed by dorsal process. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.20X as long as median lobe. Internal sac without orificial sclerites; with slender, elongate, lateral, vertical sclerite in orifice. Tegmen with cap-piece. Female (fig. 213). Sternum VIII with apical setae numerous, short, slender; arms broad, parallel, with inner margins sinuate, with outer margins parallel; fenestral area open, elongate-narrow. Apodemes markedly divergent from ca midlength, narrowly separated to near base. Spermatheca with ramus absent; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly convex. Gonocoxae long, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; apical margin somewhat produced medially, very slightly reflexed but not forming distinct lip; apicolaterally slightly swollen, with lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - The colour of the scales may be dark brown and pale tan to greyish brown and greyish, with the contrast of pale and dark scales more or less pronounced. Sometimes it is nearly unicolorous, brownish or greyish. The declivital callus on interval 5 may be more or less pronounced. Size range 4.30-5.20 mm.

REMARKS AND COMPARATIVE NOTES - This species presents no problems for classification, since it is easily distinguishable from the other Palearctic species by its large size and the pronounced declivital callus on elytral interval 5.

BIOLOGICAL NOTE - This is a monophagus species living on *Butomus umbellatus* L.. The adult can be found on the underwater portions of the plant. Mating was observed on the

flowers which it leaves toward evening, moving to the emergent portions. It eats the leaves and the pulp of the stems producing incisions and holes. The larva was found in the internal portions of the stems and the thickened parts of the leaf veins, where it pupates

TYPE LOCALITY - Western Siberia.

NOTES ON TYPE SPECIMENS - This species was described based on specimens from Germany and northern Siberia. In NHRS under this name there is a male syntype labelled "Sibiria" corresponding well to the general consensus of the species (lectotype here designated).

RANGE - Europe, Siberia, Anatolia, Middle East, Caucasus.

MATERIAL EXAMINED - We studied 83 specimens from Russia, Ukraine, Poland, Hungary, Slovakia, Austria, Italy, Croatia, Serbia, Romania, Turkey.

Bagous validus group

This group is characterized by: body robust, moderately broadly elongate-oval (fig. 41); rostrum with numerous scale-like setae along the ventro-lateral margins; pronotum distinctly wider than long, with rounded sides; median lobe elongate, tapered from base to apex in lateral view; dorsal process high, directed vertically, with sclerotized subtriangular plate (in lateral view) behind dorsal process, with elongate narrow rectilinear vertical orificial sclerite and with short median prominence bearing very short apical pili (fig. 163); female sternum VIII V-shaped, arms small and scarcely distinguishable from apodemes, with apodemes broadly divergent very near base and separated to near base (fig. 214).

Presently this group includes only *B. validus*, which is distributed in eastern and southern Europe and southwestern Asia.

67. *Bagous validus* Rosenhauer (figs. 41, 163, 214)

Bagous validus Rosenhauer, 1847: 54. Brisout, 1863: 522. Schilsky, 1907: 57. Neresheimer & Wagner, 1932a: 36. Dieckmann, 1964a: 98, 106; 1983: 370, 371.

Bagous kraatzii Brisout, 1863: 516.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.85X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; with basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin subangulate, not carinate; sides subparallel, moderately subquadrately expanded in apical 1/2; scales dense in basal 2/3, not granulate, subcontiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.38X as long as head across ocular lobes; scales nongranulate, contiguous, not pitted, round, brownish black, and brown; supraocular setae few, short, indistinct, subrecumbent, curved, slender, linearly arranged. Frons very broad, 0.76X as wide as head across eyes, weakly convex, shallowly impressed, indistinctly set off from rostrum by shallow impression; median fovea moderately deep, small. Antennae inserted at apical 1/3; scape moderately long, moderately slender, subclavate; scape and funicle reddish; funicle moderately short, 0.85X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.61X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum transverse, 0.84X as long as broad; unevenly

subparallel-sided; apical constriction moderate, in apical 1/4, dorsally shallower medially; sides moderately rounded behind constriction, slightly impressed behind round area; median sulcus indistinct, narrow, incomplete, forming moderately large, weak, shallow subbasal impression; disc transversely moderately convex, weakly rugulose; apical and marginal setae few, moderately distinct, short, suberect to subrecumbent, curved, fine; scales nongranulate, indistinctly pitted, subcontiguous, round, mainly pale brown; lacking vittae; ocular lobes moderately developed, reddish brown. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, moderately biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra gradually narrowing behind humeri to declivity; 1.30X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate, subacute, somewhat produced; even-numbered intervals flattened; odd-numbered intervals not more convex nor elevated, with setae conspicuous, short, recumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital swelling of interval 3 lacking; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales nongranulate, subcontiguous, not pitted, round, arranged irregularly, brownish; maculate; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.07X as long as sternum 1. Sternum 1 with median impression very shallow, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.10X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 2.21X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and area flat; lateral impressions shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.26X as long as 3 & 4 together, 0.57X as long as 2, 0.54X as long as 1. Legs moderately long. Femora subclavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles few, distinct, small, with conspicuous short bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, subequal to width of tibial apex; hind tibiae with 2 small denticles. Tarsi moderately short, broad, reddish brown; tarsomeres 1-3 broadened toward apex; tarsomere 3 distinctly wider at apex than 2, broadly cordate, rather deeply emarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.90 mm.

Female. Same as male except: rostrum 0.88X as long as pronotum; very slightly depressed in apical 1/2. Antennae inserted just in front of middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 163). Median lobe with dorsal surface, excluding orificial area, fully sclerotized; ventral surface fully sclerotized; more or less parallel-sided; extreme apex elongate, very broadly subacute, explanate, in lateral view slender, evenly and moderately curved, tapering; post-orificial dorsal process directed vertically, without evident setal brush; dorsal surface behind dorsal process with broad, deep depression; lateral margin behind dorsal process markedly acute; dorsal surface behind dorsal

process membranous in broad oval area; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; ventrobasally medially depressed; dorsal surface behind orifice poorly sclerotized, orifice apparently elongate-oval (i.e., pseudo-orifice produced); pseudo-orifice large, 1/2 more length of median lobe, with proximal margin distinct, arcuate. Orifice triangular; proximal margin concealed by dorsal process. Apodemes short, curving strongly inward, 0.20X as long as median lobe. Internal sac without orificial sclerites; with slender, elongate lateral vertical sclerite in orifice. Tegmen with cap-piece. Female (fig. 214). Sternum VIII with apical setae numerous, short, slender; arms slender, parallel; inner margins more or less straight, outer margins broadly, shallowly emarginate; fenestral area open, broad. Apodemes broadly divergent very near base, broadly separated to near base. Spermatheca with ramus indistinct, extending slightly past insertion of spermathecal duct, with outline almost uniformly continuous with body; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly convex. Gonocoxae long, robust, more or less straight from base to apex. Bursa copulatrix simple, without sclerites. Tergum VIII transverse, much wider than long; apical margin broadly truncate, very slightly reflexed but not forming distinct lip. Pygidium with apex bluntly rounded.

INTRASPECIFIC VARIATION - The sides of both the pronotum and elytra are subparallel to slightly divergent from base. The scales of the elytra vary from opaque to slightly shining. Size range 3.40-5.50 mm.

REMARKS AND COMPARATIVE NOTES - This species is easily distinguishable from other western Palearctic species by the robust shape of the body, the usually large size, the elytra only slightly wider than the pronotum, and the lack of white maculae.

BIOLOGICAL NOTE - This species is monophagous living on *Butomus umbellatus* L., feeding on the tissues of the leaves.

TYPE LOCALITY - Piszke (Hungary).

NOTE ON TYPE SPECIMENS - The type specimens were probably lost. However, since the species as presently treated is clearly identifiable and recognizable by consensus, there is no necessity to establish a neotype (ICZN, Art.75 b).

SYNONYMIES - *Bagous kraatzii* was described from a single specimen from Moravia. We examined this specimen (DEIE), a female labelled "Moravia / Coll. Kraatz / Holotypus / *Kraatzii* nov. sp." and confirm its synonymy with *B. validus*, previously established by many authors.

RANGE - Eastern and southern Europe (from Russia to Austria, in the South to Romania and Greece), Anatolia, Middle East.

MATERIAL EXAMINED - We examined 39 specimens from Russia, Hungary, Slovakia, Serbia, Turkey.

Bagous collignensis group

This group is characterized by: median lobe widest at dorsal process level, ventrobasally medially narrowly flattened, with apex angulately explanate, more or less sagittate; dorsal process with setal brush situated anteromedially; apodemes short, curving strongly

inward; lateral margin behind dorsal process acute; broad area behind dorsal process depressed (figs. 153-161).

This group is composed of ten western Palearctic species, two Indian species and probably other undescribed species from the eastern Palearctic. All these species share a very similar, if not identical, median lobe differing only in length and in the shape of the more or less sagittate apex. However, with the external morphology, we can observe three different subsets within the western Palearctic species. The first is composed by *B. collignensis*, *B. claudicans*, *B. rufimanus*, *B. longitarsis* and *B. vivesi*, which are species differing between them only by small features (length of tarsi and punctures of the pronotum), and often are distinguishable with difficulty also by the examination of the median lobe. The second subset is composed of only *B. diglyptus*, easily distinguished by its robust broad-oval body. The third is formed by *B. rotundicollis*, *B. riedeli* and *B. lyali*, which are characterized mainly by their slender body, flattened dorsum of the elytra and long legs.

68. **Bagous lyali** n. sp. (figs. 53, 89, 154, 215)

DESCRIPTION - Male (holotype). Body medium-sized, elongate-oval, moderately slender. Rostrum moderately short, 0.86X as long as pronotum, reddish black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus moderately developed, broad, long, coarsely punctate; ventral margin not angulate, not carinate; sides unevenly subparallel, evenly, expanding from just behind antennal insertion to apex; scales dense in basal 2/3, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium sized, 0.44X as long as head across ocular lobes; scales nongranulate, contiguous, pitted, round, brownish black, and brown; supraocular setae few, short, distinct, subrecumbent, curved, coarse, linearly arranged. Frons broad, 0.60X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, indistinctly set off from rostrum by shallow impression; median fovea moderately deep, large. Antennae inserted just behind apical 1/3; scape moderately long, moderately slender, subclavate; scape and funicle reddish; funicle moderately long, 0.82X as long as scape, segment 1 stout, 2 slender and longer than 2, 3-5 short, 6-7 transverse; segment 6-7 nearly fused with club, with pubescence distincly denser than others (fig. 53); club broad-oval, 0.56X as long as funicle, reddish brown, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.96X as long as broad; unevenly subparallel-sided, very weakly expanding from base; apical constriction weak, in apical 1/5, dorsally shallower medially; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; median carina indistinct, narrow; disc transversely weakly convex, not rugose or rugulose; apical and marginal setae moderate in number, scarcely evident, short, subrecumbent, curved, coarse; scales nongranulate, pitted, contiguous, round, mainly pale brown; lacking vittae; indistinct whitish brown maculae on disc; ocular lobes strongly developed, dark reddish. Prosternal sulcus moderately deep, very broad, moderately narrowed at apical contriction, moderately biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum small. Elytra subparallel behind humeri to declivity; 1.51X as long as wide; disc area flat; declivity at 60 degrees (in relation to dorsal plane); strongly wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, weakly obliquely

angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae conspicuous, short, subrecumbent, curled, fine, pale; intervals 1 and 2 weakly impressed; intervals 3-5 on disc uniformly parallel-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 weakly developed, rounded; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures minute, scarcely evident, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, deeply pitted, round, arranged irregularly, brown and pale tan; maculate; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.12X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin not declivous; 1.04X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 flattened; apically declivous; 2.17X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; basally flat; impressions shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.67X as long as 3 & 4 together, 0.75X as long as 2, 0.60X as long as 1. Legs moderately long. Femora clavate, reddish brown. Tibiae moderately slender, reddish brown; inner margin bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface except hind tibiae with denticles several, distinct, small, with several moderately short bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, subequal to width of tibial apex; hind tibiae with 3 small denticles, with 3 setae on inner surface. Tarsi moderately long, broad, reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 slightly wider at apex than 2, subcordate, rather deeply emarginate (fig. 89); tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.20 mm.

Female (allotype). Same as male except: rostrum 1.07X as long as pronotum; dorsal curvature uneven; slightly more distinctly curved near apex. Antennae inserted at middle. Sternum 1 with median impression interrupted (basal and apical), flattened in middle 1/2, deeper and narrowed apically.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 154). Median lobe with dorsal surface, excluding orifice and area behind dorsal process, fully sclerotized; ventral surface fully sclerotized; distinctly widest at orifice, constricted behind orifice, parallel-sided to base; extreme apex somewhat elongate, very broadly subacute, distinctly subapically constricted, distinctly angulately explanate, distinctly sagittate, in lateral view slender, declivous, acute; post-orificial dorsal process directed slightly basad, with setal brush situated anteromedially; dorsal surface behind dorsal process with broad, deep depression; lateral margin behind dorsal process strongly costate; dorsal surface behind dorsal process membranous in broad oval area; dorsobasal margin distinct, acutely deeply emarginate; ventrobasal margin distinct, deeply emarginate; ventrobasally medially narrowly flattened, bicarinate from base to below orifice. Orifice triangular, elongate; proximal margin concealed by dorsal process. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.12X as long as median lobe. Internal sac without rificial sclerites. Tegmen with cap-piece. Female (fig. 215). Sternum VIII with apical setae numerous, short, slender; arms triangular, apically convergent, with inner margins more or less straight, with outer margins broadly, shallowly emarginate; fenestral

area open, elongate-narrow. Apodemes broadly divergent near apex only; narrowly separated to base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly flat. Gonocoxae long, slender, narrowest about middle, arcuate. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; apical margin somewhat produced medially, narrowly reflexed, forming distinct lip; apicolaterally slightly angulately swollen; with lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - In two paratypes the pronotum is indistinctly subcarinate along the midline. Size range 3.70-4.30 mm.

ETYMOLOGY - This species is named in honor of our colleague and friend Christopher Lyal, who gave us invaluable assistance in the study of *Bagous* during our visits at the BMNH.

REMARKS AND COMPARATIVE NOTES - *Bagous lyali* resembles *B. riedeli*, but it is distinguishable easily by the shorter legs, especially the tarsi with tarsomere 3 subcordate and not linear, segments 6 and 7 of antennal funicle with pubescence distinctly denser than other segments and scarcely distinguishable from club segments, and the longer rostrum in the female.

BIOLOGICAL NOTE - On the label it is reported that the type specimens were collected on *Cyperus papyrus* L..

TYPE LOCALITY - Hulah (Palestine).

NOTE ON TYPE SPECIMENS - Holotype (BMNH): "95 / Papyrus, Hulah / Palestine, F.S. Bodenheimer / Pres. by Comm. Inst. Ent., *B*.M. 1981 - 315"; allotype (BMNH): ditto except "94"; 4 paratypes (1 male, RCCM; 1 male, CWOB; 2 females, BMNH): ditto except "96", "97", "99" and "100". The specimens of the type series are all partially damaged, lacking some tarsi.

RANGE - This species presently is known only from the general type locality in Palestine.

MATERIAL EXAMINED - We examined only the 6 specimens of the type series (see above).

69. **Bagous riedeli** n. sp. (fig. 42, 54, 88, 153)

DESCRIPTION - Male (holotype). Body medium-sized, moderately broad-oval, moderately robust. Rostrum moderately short, 0.85X as long as pronotum, dark reddish, subcylindrical; dorsal curvature moderate and even; ventral curvature moderate and even; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin subangulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes moderately convex, medium-sized, 0.45X as long as head across ocular lobes; scales nongranulate, subcontiguous, pitted, round, brownish; supraocular setae few, short, indistinct, recumbent, curved, coarse, linearly arranged. Frons broad, 0.62X as wide as head across eyes, weakly convex, shallowly impressed, moderately distinctly set off from rostrum by shallow median impression; median fovea shallow, large. Antennae inserted at apical 1/3; scape moderately long, moderately slender, clavate; scape and funicle reddish; funicle moderately long, 0.80X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 nearly fused with club,

with pubescence distinctly denser than other segments (fig. 54); club oval, 0.58X as long as funicle, reddish brown, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.98X as long as broad; weakly expanding from base; apical constriction moderately weak, in apical 1/5, dorsally distinct and uniform; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely unevenly flattened, weakly undulate, weakly rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, fine; scales flattened, pitted, subcontiguous, round, mainly pale brown; lacking vittae; indistinct whitish brown maculae on disc; ocular lobes strongly developed, reddish brown. Prosternal sulcus moderately deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.50X as long as wide; disc area flat; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate, subacute, somewhat produced; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae of odd-numbered intervals inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 1 and 2 weakly impressed; intervals 3-5 on disc uniformly parallel-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 moderately well-developed, angulate; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; humeri with macula pale whitish brown; antedeclivital area of interval 3 with macula grayish white; declivital callus of interval 5 with macula grayish white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.11X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.11X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.69X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; basally flat; impressions shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.31X as long as 3 & 4 together, 0.77X as long as 2, 0.63X as long as 1. Legs long. Femora subclavate, reddish black. Tibiae slender, dark reddish; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface except hind tibiae with denticles several, distinct, small, with conspicuous short bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex; hind tibiae with 3 small denticles, with 1 or 2 short setae on inner surface. Tarsi long, linear, dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, submarginate (fig. 88); tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.60 mm.

Female (allotype). Same as male except: rostrum 0.94X as long as pronotum. Antennae inserted at apical 2/5.

GENITALIA AND ASSOCIATED STRUCTURES - As *B. lyali* except: median lobe with extreme apex weakly angulately explanate, very weakly sagittate; dorsobasal margin roundly deeply emarginate (fig. 153).

INTRASPECIFIC VARIATION - The dark scales vary in color from brown to blackish brown, whereas the pale scales are whitish grey to pale tan and form more or less distinct and fused maculae. Size range 3.95-4.35 mm.

ETYMOLOGY - This species is named in honor of our friend and colleague Alexander Riedel, who collected the specimens of the type series as well as many other interesting *Bagous*.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. rotundicollis* and *B. lyali*. From the former it is immediately distinguishable by the rostrum which is distinctly shorter, not sexually dimorphic and distinctly curved in lateral view; moreover, the pronotum is less rounded at the sides, subquadrate, and the elytra are longer. *Bagous riedeli* is distinguishable easily from *B. lyali* by the markedly longer tarsi with tarsomere 3 linear and not subcordate.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Beysehir (Konya, central Turkey).

NOTE ON TYPE SPECIMENS - Holotype (ARCF) allotype (ARCF) and 41 paratypes (ARCF, CWOB, DEIE, RCCM) all labelled "Anatolia, Konya, Beysehir, 28.V.1988, leg. A. Riedel".

RANGE - This species is presently known only from the type locality in the central Turkey.

MATERIAL EXAMINED - We studied only the specimens of the type series (see above).

70. *Bagous rotundicollis* Boheman (figs. 43, 155)

Bagous rotundicollis Boheman, 1845: 75. Brisout, 1863: 498. Schilsky, 1907: 63. Dieckmann, 1964a: 92; 1983: 359, 364. Lohse, 1983: 50.
Bagous nupharis Apfelbeck, 1906: 1672. Dieckmann, 1983: 364.
Bagous rotundicollis ssp. *bucciarellii* Pesarini, 1980: 24.

REDESCRIPTION - Male. Body medium-sized, moderately broad-oval, moderately robust. Rostrum long, 1.16X as long as pronotum, reddish black, subcylindrical; dorsal curvature weak and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin not angulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 1/2, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.44X as long as head across ocular lobes; scales nongranulate, subcontiguous, pitted, round, brownish; supraocular setae few, short, indistinct, recumbent, curved, coarse, linearly arranged. Frons broad, 0.68X as wide as head across eyes, weakly convex, shallowly impressed, indistinctly set off from rostrum by shallow impression; median sulcus moderately deep, moderately broad, short. Antennae inserted just in front of middle; scape moderately long, moderately slender, subclavate; scape and funicle reddish; funicle moderately long, 0.80X as long as scape, segment 1 stout, 2 slender and longer than 1, 3-6 short, 7 strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.58X as long as funicle, reddish brown, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.83X as long as broad; moderately expanding from base; apical constriction mode-

rately weak, in apical 1/4, dorsally shallower medially; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely weakly convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, very short, recumbent, curved, coarse; scales flattened, pitted, subcontiguous, round, mainly pale brown; lacking vittae; indistinct whitish brown maculae on disc; ocular lobes moderately developed, reddish brown. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra gradually expanding behind humeri to declivity; 1.50X as long as wide; disc area flat; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, weakly obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, recumbent, curled, fine, pale whitish; intervals 1 and 2 weakly impressed; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 very weakly developed, subangulate; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, whitish and black; maculate; humeri with macula pale whitish brown; antedeclivital area of interval 3 with macula grayish white; declivital callus of interval 5 with macula small white; cuticle reddish. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.07X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, not deeper and not narrowed apically, not continued on sternum 2; apical margin moderately declivous; 1.08X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apically declivous; 1.75X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; basally flat; median impression very shallow, broad, subtriangular; lateral impressions shallow, large, slightly deeper than median impression; with cluster of three to four suberect, coarse apicolateral setae; 1.50X as long as 3 & 4 together, 0.86X as long as 2, 0.63X as long as 1. Legs long. Femora subclavate, reddish black. Tibiae slender, dark reddish; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface except hind tibiae with denticles several, distinct, small, with conspicuous short bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex; hind tibiae with 3 small denticles, with 1 or 2 short setae on inner surface. Tarsi long, linear, dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally with sparse to dense, subrecumbent to recumbent pubescence, dorsally with coarse scalelike long setae. Length, pronotum and elytron: 3.50 mm.

Female. Same as male except: rostrum 1.42X as long as pronotum, cylindrical. Antennae inserted at middle. Sternum 1 with median impression interrupted (basal and apical), deeper apically; convex in middle 1/2. Sternum 5 with pair of subbasal lateral impressions only, with apicomedian area concave.

GENITALIA AND ASSOCIATED STRUCTURES - As *B. lyali* except: median lobe with extreme apex moderately angulately explanate, moderately sagittate (fig. 155).

INTRASPECIFIC VARIATION - The length of the rostrum and tarsi, especially tarsomere 3, the prominence of the declivital callus of interval 5 and the swelling of the confluence of intervals 3 and 9 are moderately variable. The pale maculae of the elytral vestiture are more or less evident. Size range 3.90-4.40 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. riedeli* and *B. lyali*, but is distinctive among all the western Palearctic species by the elongate and straight rostrum especially evident in the female.

BIOLOGICAL NOTES - This species lives on *Nymphaea alba* L. and *Nuphar lutea* (L.) Sibth & Sm. The adult was collected on the leaves out of water.

TYPE LOCALITY - Germany (without further detail).

NOTE ON TYPE SPECIMENS - We did not examine type specimens, probably preserved in the Germar collection (Martin-Luther-Universität, Halle, Germany).

SYNONYMIES - *Bagous nupharis* was described based on specimens from Albania and Herzegovina and usually is considered as synonymous with *B. rotundicollis*. On the contrary, Pesarini (1980) believed that the two taxa are distinct species, due to some differences in the length of the tarsi and the female rostrum. Subsequently, Dieckmann (1983) confirmed that the two taxa are synonymous since the characters for their separation reported by Pesarini are variable and the median lobes show no differences. However, because of the apparently different host plant (*Nymphaea alba* for *B. rotundicollis* and *Nuphar lutea* for *B. nupharis*), it is possible to conclude that they might be subspecies of the same species.

Pesarini (1980) also described the subspecies *bucciarellii* of *B. rotundicollis*, based on a unique female, as intermediate between *B. rotundicollis* and *B. nupharis* in the length of the rostrum and tarsi. This specimen was collected in Sicily and therefore apparently is geographically isolated from the nominal form from Central Europe. However, it is noteworthy that typical specimens of *B. rotundicollis* were collected also in northwestern Anatolia. We examined all of these specimens and observed the differences in the length of tarsomere 3, apparently not following the geographical distribution, and presently we follow Dieckmann's opinion and synonymize both *B. nupharis* and *B. rotundicollis bucciarellii* with *B. rotundicollis*. However, we cannot exclude the possibility that *B. rotundicollis* could form a complex of separated species which need further studies on the grounds of biological data, since in other species, i. e. species related to *B. collignensis* and *B. tempestivus* and generally in *Bagous*, the length of tarsi is very often of taxonomic value, even when the median lobes are apparently identical.

RANGE - Eastern Europe (Lithuania, Poland, Germany, Hungary, Austria, Italy, Croatia, Herzegovina, Albania), Anatolia.

MATERIAL EXAMINED - We examined 37 specimens from Poland, Germany, Hungary, Switzerland, Austria, Italy, Herzegovina, Turkey.

71. *Bagous longitarsis* Thomson (figs. 84, 161)

Bagous longitarsis Thomson, 1868: 185. Schilsky, 1907: 73. Neresheimer & Wagner, 1930: 271. Hoffmann, 1954: 726, 731. Dieckmann, 1964a: 96, 100; 1983: 361, 366; 1990: 141. Lohse, 1983: 52. Allen, 1992: 200.

Bagous tomlini Sharp, 1917: 105. Blair, 1935: 251.

Bagous arduus Sharp, 1917: 105. Allen, 1992: 199. Hammond, in press.

Bagous longitarsis ssp. *duprezi* Hoffmann, 1950: 195; 1954: 727, 731. Dieckmann, 1987: 111.
Bagous collignensis var. *juvenilis* Hoffmann, 1954: 731 (unavailable name). Dieckmann, 1990: 144.

REDESCRIPTION - Male. Body medium-sized, moderately broad-oval, moderately robust. Rostrum moderately short, 0.79X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin not angulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, subcontiguous, pitted, oval, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium sized, 0.48X as long as head across ocular lobes; scales nongranulate, subcontiguous, pitted, round, brownish; supraocular setae few, very short, indistinct, recumbent, curved, slender, linearly arranged. Frons broad, 0.67X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, indistinctly set off from rostrum by shallow impression; median fovea shallow, small. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle long, 1.04X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.61X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.86X as long as broad; moderately expanding from base; apical constriction moderate, in apical 1/5, dorsally distinct and uniform; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus lacking; disc transversely weakly convex, not rugose or rugulose; apical and marginal setae few, scarcely evident, short, subrecumbent, curved, fine; scales subgranulate, pitted, subcontiguous, round, brownish; with 3 vittae; median vitta narrow, interrupted, indefinite, pale grayish; lateral vitta broad, pale grayish; ocular lobes moderately developed, reddish brown. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum small. Elytra gradually expanding behind humeri to declivity; 1.36X as long as wide; disc area flattened; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals very unevenly slightly more convex and elevated, with setae inconspicuous, very short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 distinctly swollen; strial grooves distinct, moderately deep, narrow; punctures small, round, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula small white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.16X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on

sternum 2; apical margin weakly declivous; 1.18X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 2.14X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; lateral impressions very shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.71X as long as 3 & 4 together, 0.80X as long as 2, 0.63X as long as 1. Legs long. Femora subclavate, reddish brown. Tibiae slender, dark reddish; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface except hind tibiae with denticles several, distinct, small, with conspicuous short bristles; outer surface with short, conspicuous bristles; uncus moderately short, moderately stout, subequal to width of tibial apex; hind tibiae with 2 small denticles, with 1 or 2 short setae on inner surface. Tarsi long, linear, reddish brown; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate (fig. 84); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae; claw segment 6.0X as long as wide. Length, pronotum and elytron: 2.40 mm.

Female. Same as male except: rostrum 0.75X as long as pronotum; very slightly depressed in apical 1/2, expanded toward apex. Antennae inserted at middle. Sternum 1 with median impression interrupted (basal and apical), convex in middle 1/2.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 161). Median lobe with dorsal surface, excluding orifice and area behind dorsal process, fully sclerotized; ventral surface fully sclerotized; moderately widest at orifice, weakly constricted behind orifice, parallel-sided to base; extreme apex somewhat elongate, very broadly subacute, distinctly subapically constricted, angulately explanate, sagittate, in lateral view slender, declivous, acute; post-orificial dorsal process directed slightly basad, with setal brush situated anteromedially; dorsal surface behind dorsal process with broad, deep depression; lateral margin behind dorsal process strongly costate; dorsal surface behind dorsal process membranous in broad oval area; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; ventrobasally medially narrowly flattened, bicarinate from base to below orifice. Orifice triangular, elongate; proximal margin concealed by dorsal process. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.12X as long as median lobe. Internal sac without orificial sclerites. Tegmen with cap-piece. Female (as *B. lyali*, fig. 215). Sternum VIII with apical setae numerous, short, slender; arms triangular, apically convergent, with inner margins more or less straight, with outer margins broadly, shallowly emarginate; fenestral area open, elongate-narrow. Apodemes broadly divergent near apex only; narrowly separated to base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly flat. Gonocoxae long, slender, narrowest about middle. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; apical margin somewhat produced medially, narrowly reflexed, forming distinct lip; apicolaterally slightly angulately swollen; with lateral margins slightly inflexed ventrolaterally. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - The elytral maculae may be more or less numerous, distinct and separate; the elytra, which are usually moderately short and robust, may be more slender. Size range 2.30-2.85 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous longitarsis* can be distinguished from the

closely related species, *B. collignensis*, *B. claudicans*, *B. rufimanus* and *B. vivesi*, by their more elongate tarsi and the more flattened disc of the elytra. We examined two specimens from Azerbaijan (Caspian See: one male from Lenkoran, ZSSM, and one female from Astara, USNM) which seem very closely related to the European specimens of *B. longitarsis* because of the length of the tarsi and the shape of the median lobe, but these have more convex and narrower elytra and slightly more linear tarsal segments. They might represent a southern subspecies of *B. longitarsis* or a new species intermediate between *B. longitarsis* and *B. rufimanus*.

BIOLOGICAL NOTE - This species lives on *Myriophillum* spp., especially *M. verticillatum* L., of which it eats the leaves. It can be collected in the water where it seems to mate, and along the muddy sides of pools.

TYPE LOCALITY - Lamma (Sweden).

NOTES ON TYPE SPECIMENS - In the Thomson collection (MZUL) we examined two syntypes: one male labelled "La / Lamma / Coll. Thoms./ *longitarsis* Thoms., Paratypus" (lectotype here designated) and one female labelled "La / Lamma / Coll. Thoms. / Typus".

SYNONYMIES - *Bagous tomlini* was described based on specimens from Romney Marshes and New Forest (England) and synonymized with *B. longitarsis* by Blair (1935). This synonymy was confirmed by Dieckmann (1964a) and Allen (1992).

Bagous arduus was described based on a single male from England, "probably from the London district" according to Sharp (1917). After the study of the holotype, Allen (1992) concluded that *B. arduus* must continue to stand as a valid species, closely related presumably to *B. collignensis* by its more broadly, flatly and squarely truncate apex of the median lobe. Recently, Hammond (pers. comm., 1996) placed *B. arduus* in synonymy with *B. longitarsis*, affirming that the apex of the median lobe of *B. arduus* is truncated only because damaged; otherwise it is the same as in *B. longitarsis*. We examined the holotype of *B. arduus*, labelled "Drawer 17, Ex Coll. David Sharp, Reg. 8. XII. 1922 / Holotype" (BMNH) two times: before and after Hammond, and agree with this author that *B. arduus* must be considered as synonymous of *B. longitarsis*.

Also the synonymy of the ssp. *duprezi* with the typical form was recently established by Dieckmann (1987, 1990). The var. *juvenilis* was described by Hoffmann as an aberration of *B. collignensis* living among the typical forms. Therefore, according to the Art. 45 f and g of the ICZN (1985), this name must be considered as infrasubspecific and not available. Dieckmann (1990) established that this variety of Hoffmann is synonymous with *B. longitarsis* and designated one specimen of the Hoffmann collection (MHNP) as holotype of *B. collignensis* var. *juvenilis*. However, due to the unavailability of the name *juvenilis* this procedure is not valid.

RANGE - Northern and central Europe from western Poland and Slovakia to France and England, and with the southern limits in the South to southern France and northern Italy. In regard to the possible presence of the species in Azerbajdzan see remarks.

MATERIAL EXAMINED - We studied 51 specimens from Poland, Germany, England, France, Italy.

72. *Bagous collignensis* (Herbst) (figs. 87, 159)

Curculio collignensis Herbst, 1797: 50.

Bagous collignensis (Herbst), Neresheimer & Wagner, 1930: 266. Hoffmann, 1954: 726, 730. Dieckmann, 1964a: 97, 100; 1983: 362, 366; 1990: 142.
Bagous muticus Thomson, 1868: 184. Dieckmann, 1990: 142.

REDESCRIPTION - Same as *B. longitarsis* except: antennae in male inserted at apical 1/3 of rostrum, in female at apical 2/5. Pronotum with disc rugulose. Elytra slightly narrowing behind humeri to declivity; slightly convex on disc. Tarsi with tarsomeres 2 and 3 as long as wide; claw segment 4.0X as long as wide (fig. 87). Median lobe with extreme apex distinctly angulately explanate, distinctly sagittate (fig. 159).

INTRASPECIFIC VARIATION - The elytra may be more or less slender. Size range 2.20-2.90 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. claudicans* which was considered its synonym until the recent paper by Dieckmann (1990). The two species can be distinguished by the differences reported in our key and those in the median lobe which in *B. collignensis* is shorter and has the acute lateral apical prominences less pronounced.

BIOLOGICAL NOTE - This species lives in water on *Myriophyllum* spp., *M. elatinoides* Daudich imported from Australia, and *M. spicatum* L.. The adult can be collected in the muddy soil and in debris near the host plant.

TYPE LOCALITY - Churmark (part of Mark Brandenburg, Germany).

NOTES ON TYPE SPECIMENS - The type was recently examined by Dieckmann (1990) in the Herbst collection (MNHB).

SYNONYMIES - *Bagous muticus*, described from Ringsjon Lake (Scania, Sweden), was recently synonymized with *B. collignensis* by Dieckmann (1990) after the examination of type specimens (lectotype, Dieckmann des. 1990) which we examined also (NHRS).

RANGE - Northern, western, central and eastern Europe and central Asia from North Kazakhstan to northwestern France with the southern limit in northern Italy.

MATERIAL EXAMINED - We studied 76 specimens from Sweden, Poland, Germany, Great Britain, France, Slovakia, Czech Rep., Austria, Italy,

73. *Bagous claudicans* Boheman (fig. 160)

Bagous claudicans Boheman, 1845: 80. De Meiyere, 1912: 213. Dieckmann, 1990: 142, 143.

REDESCRIPTION - Same as *B. longitarsis* except: antennae in male inserted at middle of rostrum, in female just behind middle. Pronotum with disc rugulose. Elytra slightly narrowing behind humeri to declivity, slightly convex on disc. Tarsi with tarsomeres 2 and 3 as long as wide; claw segment 4.0X as long as wide (as *B. collignensis*, fig. 87). Median lobe with extreme apex distinctly angulately explanate, distinctly sagittate (fig. 160).

INTRASPECIFIC VARIATION - The sides of the pronotum and elytra may be more or less rounded. Size range 2.80-3.30 mm.

REMARKS AND COMPARATIVE NOTES - We agree with Dieckmann's opinion (1990) to consider *B. claudicans* a good species and not synonymous with *B. collignensis*. The differences between the two taxa in external morphology reported in the key and in the shape of the median lobe are small but constant. Their different biology also appears very important to us.

BIOLOGICAL NOTES - This species lives in water or on marshy meadows on *Equisetum humosum* Willd., on the apex of the stems of which the adult was observed to lay eggs

(Meiyere, 1912). The pupal stage lasts 10-12 days. The larva eats the tissue of the internal portion of the stem, and can pass from one internode to another, by piercing the node. The apex of the parasitized stems dry for a length of 5-15 cm.

TYPE LOCALITY - Germany (without further detail).

NOTES ON TYPE SPECIMENS - The lectotype (Dieckmann des., 1990) is preserved in MNHB.

RANGE - North, West and Central Europe (Sweden, northern France, Germany, Poland).

MATERIAL EXAMINED - We studied 18 specimens from Sweden, Poland, Germany, France.

74. *Bagous rufimanus* Péricart (figs. 85, 157)

Bagous rufimanus Péricart, 1989: 168.

Bagous collignensis var. *rufimanus* Hoffmann, 1954: 731 (unavailable name). Dieckmann, 1990: 141, 144. Mantovani et al., 1992: 117.

REDESCRIPTION - Same as *B. longitarsis* except: elytra subparallel-sided; slightly convex on disc. Tarsomeres 2 and 3 slightly longer than wide; claw segment 4.0X as long as wide (fig. 85). Median lobe with extreme apex very weakly angulately explanate (fig. 157).

INTRASPECIFIC VARIATION - The sides of the pronotum and elytra may be more or less rounded. Size range 2.20-3.30 mm.

REMARKS AND COMPARATIVE NOTES - *Bagous rufimanus* differs from *B. longitarsis* mainly in the shorter tarsi and from *B. collignensis* and *B. claudicans* in the slightly longer tarsi and the finer sculpture of the pronotum. Also important is the different distribution of *B. rufimanus* which appears partially vicariant in relation to these species in southeastern Europe; in fact the four species live together only in northern France, Austria and probably northern Italy.

BIOLOGICAL NOTE - Larvae and pupae were recently described by Mantovani et al. (1992), who observed immatures and adults on *Trapa natans* L. at Candia Lake, a small eutrophic lake in Piedmont (northern Italy). The adult was observed on the lower surface of the leaves, the stems and the petioles of this plant. The female perforates the cortical layer of the petiole and forms a small niche into which it inserts an egg. Subsequently the larva feeds on the aerenchyma of the petiole, excavating tunnels. When the larva has matured, it moves to the median part of the petiole where it carves a niche in which pupation takes place. The duration of the pupation is unknown.

TYPE LOCALITY - Gironde (France).

NOTES ON TYPE SPECIMENS - The var. *rufimanus* was described by Hoffmann (1954) as an aberration of *B. collignensis* living together with the typical form. Therefore, the author neither gave type locality, nor designated type specimens and, according to the ICZN Art. 45 f and g, his name *rufimanus* must be considered infrasubspecific. Dieckmann (1990), after the examination of one female in the Hoffmann collection (MHNP) with this name, established that *B. rufimanus* is a valid species and designated this specimen as holotype of *B. rufimanus* Hoffmann. However, for the reason mentioned above and according to the ICZN Art. 50 c, the author of this species is the one who first treated the name as available. Therefore Péricart, who first considered *B. rufimanus* as a valid species (in Tempère & Péricart, 1989), although on the basis of information received by Dieckmann before the publication of his paper (Dieckmann, 1990), is actually the author of this species.

RANGE - Western, southern and southeastern central Europe, from Romania and Austria to

western France with the southern limits in southern Italy (Basilicata) and Greece (Eubea), Anatolia.

MATERIAL EXAMINED - We studied 183 specimens from Austria, France, Italy, Croatia, Serbia, Albania, Greece, Romania, Turkey.

75. *Bagous vivesi* González (figs. 86, 158)

Bagous vivesi González, 1967: 97.

REDESCRIPTION - Same as *B. longitarsis* except: elytra gradually narrowing behind humeri to declivity, slightly convex on disc. Tarsi with tarsomeres 2 and 3 as long as wide; claw segment 4.0X as long as wide (fig. 86). Median lobe with extreme apex angulately explanate, distinctly sagittate, rounded (fig. 158).

INTRASPECIFIC VARIATION - The pale maculae of the elytra are more or less distinct. Size range 2.10-3.10 mm.

REMARKS AND COMPARATIVE NOTES - This species seems to be unique among the species related to *B. collignensis* which inhabit the Iberian Peninsula and Morocco. Due to the shape of the tarsi and the fine pronotal sculpture, it is related mainly to *B. rufimanus*, from which it differs consistently only by the shape of the apical portion of the median lobe which is differently sagittate. However, regarding the external morphology, in *B. vivesi* usually tarsomere 3 is slightly shorter, about as long as wide (as in *B. collignensis*), and the elytra are slightly more robust and usually widest in the basal 1/2.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Picos de Europa (northern Spain).

NOTES ON TYPE SPECIMENS - This species was described based on a single male collected by González at "Picos de Europa, Refugio de Aliva, 1630 m, 19.VII.1965", presently not found in the González collection (MCNM), where it should be preserved (Alonso Zarazaga, pers. comm., 1994). However, on the basis of the original description and the careful illustration of the characteristic sagittate apex of the median lobe, we assigned some specimens from the Iberian Peninsula and Morocco to this species, although all the localities where these specimens were collected are far from the type locality of the species.

RANGE - Spain, Portugal, Morocco.

MATERIAL EXAMINED - We studied 30 nontype specimens. Spain: Hispania m., Andalusia / Coll. Kraatz (1, DEIE); Spain: Coto Doana, Huelva prov., 11-16.VI.1967, leg. *B.* Malkin / open pond in swamp (1, RCMC); Spanien, Andalusien Prov. Malaga / Marbella, 20.V.1968, leg. E. Ulbrich (3, DEIE); España (Cc), Minjadas, 4.V.1992, P. Poot (2, PPCM); Pozuelo (4, MCNM). Portugal: Leca, C. de Barros (3, MHNP). Morocco: D. Ahoua, m 1400, Maroc - Bleton (2, MHNP); Dajet Ahoua, Otin, 22.IV.1935 / Moyen Atlas, Alt. 1400 m (1, MHNP); Dayet Aoua, 22.V.1995, Maroc, leg. J.L. Forrest (5, JPCM); Dajet er Roumi, Alluaud 1897 (1, MHNP); Marruecos, Larache, Escalera (1, MCNM); Maroc, Rabat, A. Thery (1, MHNP); Maroc, Sebou, A. Thery (1, MHNP); Tafert, 15.VII.1939, Maroc - Bleton (2, MHNP); Tanger (1, MCNM); Tetuan, Morocco, J. J. Walker (1, BMNH).

76. *Bagous diglyptus* Boheman (figs. 44, 156)

Bagous diglyptus Boheman, 1845: 82. Brisout, 1863: 505. Schilsky, 1907: 60. Sharp, 1917b: 106.

Hustache, 1930: 209, 222. Hoffmann, 1954: 725, 728. Dieckmann, 1964a: 97, 103; 1983: 363, 368. Lohse, 1983: 54. Tempère & Péricart, 1989: 168.
Bagous curtus Gyllenhal, 1845: 81. Brisout, 1863: 520. Hustache, 1930: 209, 228. Hoffmann, 1954: 726, 729. Dieckmann, 1964a: 103.
Bagous brevitarsis Hansen, 1917: 352. Dieckmann, 1964a: 104.
Bagous diglyptus var. *alpestris* Hoffmann, 1954: 729 (**n. syn.**).

REDESCRIPTION - Male. Body medium-sized, broad-oval, robust. Rostrum moderately short, 0.83X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus scarcely evident, broad, long, coarsely punctate; ventral margin subangulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.40X as long as head across ocular lobes; scales nongranulate, contiguous, coarsely pitted, round, brownish black, and brown; supraocular setae few, very short, indistinct, recumbent, curved, coarse, linearly arranged. Frons broad, 0.64X as wide as head across eyes, weakly convex, indefinitely shallowly impressed, indistinctly set off from rostrum by shallow impression; median fovea shallow, large. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle moderately long, 0.73X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.64X as long as funicle, reddish black, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.93X as long as broad; parallel-sided; apical constriction moderate, in apical 1/5, dorsally distinct and uniform; sides weakly rounded behind constriction, not impressed somewhat behind round area; median sulcus distinct, narrow, incomplete, of uniform depth and width or almost so; disc transversely moderately convex, weakly rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, coarse; scales granulate, coarsely pitted, subcontiguous, round, blackish brown; with 3 vittae; median vitta narrow, complete, distinct, straight, pale grayish brown; lateral vitta moderately broad, pale grayish brown; ocular lobes strongly developed, reddish black. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) subacute. Scutellum small. Elytra subparallel behind humeri to declivity; 1.33X as long as wide; disc area strongly convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals very unevenly slightly more convex and elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc uniformly parallel-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 very weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, moderately elongate, narrow, moderately deep, not wider than strial grooves; scales subgranulate, subcontiguous, finely pitted, round, arranged irregularly, black, brown, and white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula white; cuticle blackish brown. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae.

Metasternum 1.00X as long as sternum 1. Sternum 1 with median impression moderately shallow, broad, continuous for entire length, deeper and not narrowed apically, not continued on sternum 2; apical margin moderately declivous; 1.30X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 basally convex; apical 1/2 steeply declivous; 1.80X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; lateral impressions very shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.43X as long as 3 & 4 together, 1.11X as long as 2, 0.62X as long as 1. Legs moderately short. Femora subclavate, black. Tibiae moderately stout, dark reddish; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, indistinct, minute, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus short, stout, shorter than width of tibial apex. Tarsi moderately short, broad; reddish brown; tarsomeres 1-3 broadened toward apex; tarsomere 3 not wider at apex than 2, subcordate, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.50 mm.

Female. Same as male except: rostrum 0.82X as long as pronotum; very slightly depressed in apical 1/2. Sternum 1 with median impression interrupted (basal and apical), flattened in middle 1/2.

GENITALIA AND ASSOCIATED STRUCTURES - As *B. longitarsis* except: median lobe barely widest at orifice; extreme apex distinctly angulately explanate, distinctly sagittate (fig. 156).

INTRASPECIFIC VARIATION - The pronotal and elytral vestiture may be nearly unicolorous brown to dark greyish. Size range 2.00-2.50 mm.

REMARKS AND COMPARATIVE NOTES - It is always easy to distinguish this species from the others inhabiting the western Palearctic Region, due to its short and globose elytra associated with short tarsi with tarsomere 3 nearly identical in length and width to tarsomere 2.

BIOLOGICAL NOTE - This species lives in moist as well as dry places from the plain to the mountains. Its host plant is *Saxifraga granulata* L. of which the adult eats the stem.

TYPE LOCALITY - Saxonia (Germany).

NOTES ON TYPE SPECIMENS - In NHRS we examined one male syntype labelled "Typus / *B. diglyptus* Germar, Saxone mont. / *Bagous curtus*, det. Bruce 1964" (lectotype here designated).

SYNONYMIES - *Bagous curtus* was described based on specimens from Holmiam (Sweden) one page before *B. diglyptus*, and we examined one female syntype labelled "Schh. / Hlm. / typus" (NHRS) (lectotype here designated). We confirm the opinion of Dieckmann (1964a) who considered this specimen synonymous with *B. diglyptus*. As rightly reported by Dieckmann (1983), due to the principle of the first reviser (ICZN, 1985, Art. 24) the name *diglyptus* has precedence over *curtus*. The synonymy of *B. brevitarsis* (type locality: North of Sjaelland, Denmark) with *B. diglyptus* was established by Smreczynski (see Dieckmann, 1964a) after the examination of one syntype.

Hoffmann described the var. *alpestris* of *B. diglyptus* as a mountain race collected in Hautes-Alpes and Basses-Alpes (France). In the Hoffmann collection (MHNP) we examined three syntypes: one specimen labelled "Mont Siron près Digne / Peyerimhoff, 28-4-1900" (male, lectotype here designated) and two specimens labelled "Mt. Gènevre, H. Alpes, 1450 m alt.

(sous les mousses)" without observing morphological differences from the typical specimens.

RANGE - Northern, western and central Europe (Sweden, Denmark, Baltic States, Great Britain, Belgium, France, northern Italy, Germany, Poland, Czech Republic, Slovakia, Hungary).

MATERIAL EXAMINED - We studied 44 specimens from Sweden, Denmark, Estonia, Poland, Germany and France.

Bagous brevis group

This group is characterized by: pronotum subrectangular with median longitudinal sulcus; tarsi sublinear, short; tarsomere 3 as wide as tarsomere 2 (figs. 90-91); median lobe elongate, widest at level of dorsal process and constricted behind dorsal process (except for *B. lutulosus*), with extreme apex subtruncate, very bluntly rounded; dorsal process low, flattened, laterally with pair of short wings obliquely arranged, with setal brush situated anteromedially (except for *B. lutulosus*); with costate lateral margin behind dorsal process; ventrally bicarinate from base to below orifice; apodemes very short, convergent, sinuate at apex (figs. 149-152); female sternum VIII (figs. 217-218) with subrectangular elongate arms, usually divergent (except for *B. lutulosus*, fig. 216)).

This homogeneous group is presently composed of four western Palearctic species and one eastern Palearctic species (*B. rufipennis* Gratshev).

77. *Bagous lutulosus* (Gyllenhal) (figs. 45, 90, 149, 216)

Rhynchaenus lutulosus Gyllenhal, 1827: 568.
Bagous lutulosus (Gyllenhal), Gyllenhal, 1836: 546. Boheman, 1845: 83. Brisout, 1863: 506. Schilsky, 1907: 70. Sharp, 1917b: 106. Hustache, 1930: 210, 225. Hoffmann, 1954: 727, 732. González, 1967: 97. Dieckmann, 1983: 362, 367. Lohse, 1983: 53.
Bagous formicetorum Jacquelin du Val, 1854: 232, note 1.
Bagous dorsalis Perris, 1857: 64, 144. Jaquelin du Val, 1854: 232, note 1.
Bagous semilunatus Desbrochers, 1896: 97. Hustache, 1927: 126, 133 (**n. syn.**).
Bagous cruentatus J. Sahlberg, 1900: 21. Hellen, 1922: 88.
Bagous lutulosus ssp. *temperei* Hoffmann, 1950: 196; 1954: 733. Dieckmann, 1987: 112.
Bagous lutulosus var. *pueli* Hoffmann, 1950: 196; 1954: 733 (**n. syn.**).

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately short, 0.76X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; ventral margin not angulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, subrugose, contiguous, pitted, round, brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes flat, medium-sized, 0.50X as long as head across ocular lobes; scales granulate, subcontiguous, pitted, round, brownish; supraocular setae few, very short, indistinct, recumbent, curved, coarse, linearly arranged. Frons very broad, 0.80X as wide as head across eyes, moderately convex, shallowly impressed, distinctly set off from rostrum by shallow median impression; median fovea moderately deep, large. Antennae inserted just in front of middle; scape short, moderately stout, subclavate; scape and funicle dark reddish; funicle moderately short, 0.87X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than

other segments; club oval, uniformly pubescent, reddish brown, 0.64X as long as funicle, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.91X as long as broad; weakly expanding from base; apical constriction in apical 1/4, moderate, dorsally distinct and uniform; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus distinct, narrow, complete, forming subapical and subbasal impressions, subbasal impression moderately small, weak, shallow, apical impression moderately large, weak, shallow; disc transversely moderately convex, rugulose; apical and marginal setae few, scarcely evident, very short, recumbent, curved, fine; scales granulate, coarsely pitted, subcontiguous, round, blackish brown; with 3 vittae; median vitta very narrow, complete, distinct, straight, pale grayish brown; lateral vitta moderately broad, pale grayish brown; ocular lobes moderately developed, dark reddish. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.43X as long as wide across humeri; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals slightly more convex and elevated, broader than even intervals, with setae inconspicuous, very short, recumbent, curled, fine, pale whitish; intervals 3-5 on disc uniformly parallel-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 well-developed, angulate; confluence of intervals 3 and 9 not swollen; strial grooves distinct, moderately deep, narrow; punctures small, round, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, black, brown, and white; maculate; humeri with macula white; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula lacking; cuticle reddish. Metasternum 1.19X as long as sternum 1. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Sternum 1 with median impression moderately shallow, broad, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.22X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 1.58X as long as 3 & 4 together. Sternum 5 flat; with cluster of three to four suberect, coarse apicolateral setae; 1.08X as long as 3 & 4 together, 0.68X as long as 2, 0.59X as long as 1. Legs moderately short. Femora subclavate, reddish black. Tibiae moderately stout, reddish brown; inner margin weakly bisinuate, outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with short, inconspicuous bristles; uncus moderately short, moderately stout, subequal to width of tibial apex. Tarsi moderately short, sublinear, dark reddish; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate (fig. 90); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.15 mm.

Female. Same as male except: rostrum 0.79X as long as pronotum. Antennae inserted at middle. Sternum 1 with median impression interrupted (basal and apical); flattened in middle 1/2; apical margin declivous.

GENITALIA AND ASSOCIATED STRUCTURES. Male (fig. 149). Median lobe with dorsal surface, excluding orifice and area behind dorsal process, fully sclerotized; ventral surface fully

sclerotized; asymmetrical toward apex; more or less parallel-sided; extreme apex somewhat elongate, subtruncate, very bluntly rounded, angulately explanate, in lateral view slender, evenly and moderately curved, narrowly rounded; post-orificial dorsal process directed slightly basad, without evident setal brush; dorsal surface behind dorsal process with broad, deep depression; lateral margin behind dorsal process markedly acute; dorsal surface behind dorsal process membranous in broad quadrate area; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate. Orifice triangular, elongate; proximal margin concealed by dorsal process. Apodemes slender, tapering, very short, curving strongly inward and with extreme apex sinuate, 0.10X as long as median lobe. Internal sac without orificial sclerites. Tegmen with cap-piece. Female (fig. 216). Sternum VIII with apical setae several, short, robust; arms slender, apically convergent, with inner margins broadly, shallowly arcuate, with outer margins broadly, shallowly emarginate; fenestral area open, oval. Apodemes broadly divergent near apex only, narrowly separated to ca midlength. Spermatheca with ramus prominent, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus irregularly wrinkled. Gonocoxae short, slender, tapering toward base, arcuate. Bursa copulatrix simple, without sclerites. Tergum VIII transverse, much wider than long; apical margin somewhat produced medially, very slightly reflexed but not forming distinct lip. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - The broad pale elytral macula varies in color (whitish grey to pale yellowish) and in distinctness; the colour of the integument of the lateral areas varies from reddish to dark brown. Size range 1.90-2.50 mm.

REMARKS AND COMPARATIVE NOTES - This species shares many characters with *B. brevis* and *B. lothari*, but it can be distinguished by the shorter tibiae and tarsi, with tarsomere 3 only as long as wide, the more convex elytral intervals and often the elytral vestiture with a distinctive sublunate macula, as well as the shape of the genitalia.

BIOLOGICAL NOTE - The adult lives on *Juncus* spp., *J. bufonius* L. and *J. obtusiflorus* Ehrh., piercing the basal bracts of the stem. It can be collected also in meadows well away from the margins of the pools.

TYPE LOCALITY - Southern Sweden.

NOTES ON TYPE SPECIMENS - We examined the lectotype (male) labelled Uppsala Univ. Zool. Mus. Gyllenhals saml. Typ. nr. 1372 Lectotypus *Bagous lutulosus* Gyll. design. N. Bruce - 66" and three paralectotypes all preserved at ZMUU.

SYNONYMIES - The synonymies of *B. formicetorum* and *B. dorsalis* with *B. lutulosus* were already reported by Brisout (1863) and confirmed by Hustache (1930). We did not examine the types of these two species, but there are no doubts on the correctness of the synonymies.

Bagous semilunatus was described based on specimens from Bône (Algeria). In the Desbrochers collection (MHNP), under the label " *semilunatus* " we examined one male syntype bearing only one green round label (as on other Desbrochers's types from Algeria) with an unintelligible handwritten word (Bat...) perfectly corresponding to the original description (lectotype here designated). It is an immature specimen of *B. lutulosus* characterized by an evident elytral pattern with a whitish yellow semilunate macula. The median lobe is scarcely sclerotized and has an apex less sinuate and more rounded than usual.

Bagous cruentatus was described based on a single specimen from Ylane (Pyhajarvi lake, Finland) and its synonymy with *B. lutulosus* was established by Hellen (1922). The synonymy of *B. lutulosus* ssp. *temperei* described by Hoffmann from specimens from Gironde (France), was recently established by Dieckmann (1987) after the examination of the types and comparison with the typical form. We also studied these types (MHNP) and agree with this synonymy. Hoffmann also described the variety *pueli* of *B. lutulosus* from specimens from Kabylie (Tunisia), which subsequently he transferred to the ssp. *temperei* (Hoffmann, 1954). In the Hoffmann collection (MHNP) we examined one female syntype of the variety *pueli* labelled "Bou-Berak, Kabylie, L. Puel / type" (lectotype here designated) which we synonymize with *B. lutulosus*.

RANGE - Europe, North Africa.

MATERIAL EXAMINED - We studied 72 specimens from Sweden, Poland, Germany, France, Italy, Spain, Morocco, Tunisia, Algeria.

78. **Bagous lothari** n. sp. (figs. 46, 91, 151, 217)

DESCRIPTION - Male (holotype). Body medium-sized, moderately elongate-oval, moderately robust. Rostrum short, 0.74X as long as pronotum, black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; basolateral carina on each side; basolateral sulcus shallow, broad, long; ventral margin weakly subangulate, subcarinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, subrugose, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.43X as long as head across ocular lobes; scales granulate, subcontiguous, pitted, round, brownish black, and brown; supraocular setae few, very short, indistinct, recumbent. Frons very broad, 0.75X as wide as head across eyes, weakly convex, deeply impressed, distinctly set off from rostrum by shallow median impression; median sulcus deep, moderately broad, short. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle dark reddish; funicle long, 1.00X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.73X as long as funicle, reddish black, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.89X as long as broad; moderately expanding from base; apical constriction moderate, in apical 1/4, dorsally distinct and uniform; sides weakly rounded behind constriction, slightly impressed behind round area; median sulcus distinct, narrow, complete, forming subapical and subbasal impressions, both impressions moderately large, distinct, moderately shallow; disc transversely moderately convex, weakly rugulose; apical and marginal setae few, scarcely evident, very short, subrecumbent, curved, coarse; scales granulate, coarsely pitted, subcontiguous, indefinitely shaped, blackish brown; with 3 vittae; median vitta moderately broad, interrupted, distinct, uneven, pale grayish brown; lateral vitta moderately broad, pale grayish brown; ocular lobes moderately developed, dark reddish. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.40X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation

to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals very slightly more convex and elevated, broader than even-numbered intervals, with setae inconspicuous, very short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, shallow, narrow; punctures small, round, narrow, shallow, not wider than strial grooves; scales subgranulate, subcontiguous, finely pitted, round, arranged irregularly, brown, whitish and black; maculate; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula lacking; cuticle reddish. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.15X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.20X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 basally convex; apical 1/2 steeply declivous; 1.73X as long as 3 & 4 together. Sternum 5 flat; with cluster of three to four suberect, coarse apicolateral setae; 1.47X as long as 3 & 4 together, 0.85X as long as 2, 0.67X as long as 1. Legs moderately long. Femora subclavate, black. Tibiae moderately slender, reddish black; inner margin weakly bisinuate; outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately stout, subequal to width of tibial apex. Tarsi moderately short, sublinear, reddish brown; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate (fig. 91); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.40 mm.

Female. Same as male except: rostrum 0.79X as long as pronotum. Antennae inserted at apical 2/5. Sternum 1 with median impression interrupted (basal and apical); flattened in middle 1/2. Length, pronotum and elytra: 2.60 mm.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 151). Median lobe with dorsal surface, excluding orifice and area behind dorsal process, fully sclerotized; ventral surface fully sclerotized; widest at orifice, slightly constricted behind dorsal process, enlarging toward base; extreme apex not elongate, subtruncate, very bluntly rounded, angulately explanate, in lateral view robust, declivous, acute; post-orificial dorsal process directed slightly basad, with setal brush situated anteromedially; dorsal surface behind dorsal process with broad, deep depression; lateral margin behind dorsal process strongly costate; dorsal surface behind dorsal process membranous in small oval area; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; ventrobasally medially narrowly flattened, bicarinate from base to below orifice. Orifice triangular, elongate; proximal margin concealed by dorsal process. Apodemes short, curving strongly inward and with extreme apex sinuate, 0.14X as long as median lobe. Internal sac without orificial sclerites. Tegmen with cap-piece. Female (fig. 217). Sternum VIII with apical setae several, long, slender; arms moderately slender, divergent, with inner margins more or less straight, with outer margins straight; fenestral area open, oval. Apodemes broadly divergent near apex only; narrowly separated to near base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal

duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus partly coarsely wrinkled, partly convex. Gonocoxae short, robust. Bursa copulatrix simple, without sclerites. Tergum VIII rounded, almost hemispherical; apical margin bluntly rounded, narrowly reflexed, forming distinct lip; apicolaterally slightly swollen; lateral margins slightly inflexed ventrolaterally. Pygidium with apex truncate.

INTRASPECIFIC VARIATION - The elytra vary slightly in width. The male paratype from the type locality has the pronotum more distinctly widest at the apical third. Size range 2.45-2.60 mm.

ETYMOLOGY - This species is named in memory of Lothar Dieckmann, who was an outstanding expert of Curculionidae and whose careful studies of the Middle European *Bagous* represented an indispensable basis to our present revision.

REMARKS AND COMPARATIVE NOTES - Dieckmann (1983) also believed that the specimen from Donnerskirchen represented a new species and he himself sent us the specimens from Serbia to study. The differences between *B. lothari* and *B. brevis* reported in our key and those in the shape of the median lobe (see illustrations) are small but constant.

BIOLOGICAL NOTE - No data are available.

TYPE LOCALITY - Fruska Gora (Serbia).

NOTE ON TYPE SPECIMENS - Holotype (DEIE), allotype (DEIE) and one male paratype (RCCM): "Serbia Bor., Fruska Gora, Dr. A. Hensch" (DEIE); one male paratype (coll. Hoffmann, MHNP): "Serbien, Obrenovac, V.39 / Sammlung Apfelbeck"; one male paratype (DEIE): "Austria Bgld., 13-17.5.67 / Donnerskchn., Loithagebge Hudepohl / *Bagous* sp. n.? aff. *brevis* Gyll.".

RANGE - Serbia, southern Austria.

MATERIAL EXAMINED - We examined only the five specimens of the type series (see above).

79. *Bagous brevis* Gyllenhal (fig. 150)

Bagous brevis Gyllenhal, 1836: 550; 1845: 81. Brisout, 1863: 520. Hansen, 1917: 356. Sharp, 1917b: 106. Hustache, 1927: 125, 132; 1930: 210, 220. Hoffmann, 1954: 736, note 2. Dieckmann, 1964a: 96, 102; 1983: 361, 367. Bangsholt, 1981: 99. Lohse, 1983: 52. Morris, 1985: 400. Tempère & Péricart, 1989: 169. Cuppen & Heijerman, 1995: 45.

Bagous armoricanus Hoffmann, 1931: 68; 1954: 727, 733. Dieckmann, 1987: 111.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum short, 0.74X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; lacking basolateral sulcus or carina; ventral margin weakly subangulate, subcarinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, subrugose, contiguous, finely pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at middle. Head with swelling beside eye lacking; eyes weakly convex, small, 0.45X as long as head across ocular lobes; scales granulate, subcontiguous, pitted, round, brownish black, and brown; supraocular setae few, very short, indistinct, recumbent. Frons very broad, 0.77X as wide as head across eyes, weakly convex, deeply impressed, distinctly set off from rostrum by shallow median impression; median sulcus deep, moderately broad, short. Antennae inserted just in front of middle; scape moderately short, moderately slender, subclavate; scape and funicle reddish brown; funicle long, 0,98X as long as scape, segment

1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.76X as long as funicle, reddish black, uniformly pubescent, segment 1 shorter than segments 2-4. Pronotum weakly transverse, 0.86X as long as broad; moderately expanding from base; apical constriction moderate, in apical 1/4, dorsally distinct and uniform; sides moderately rounded behind constriction, distinctly impressed behind round area; median sulcus distinct, narrow, complete, of uniform depth and width, moderately large, distinct, moderately shallow; disc transversely moderately convex, moderately rugulose; apical and marginal setae few, scarcely evident, very short, subrecumbent, curved, coarse; scales granulate, coarsely pitted, subcontiguous, indefinitely shaped, blackish brown; with 3 vittae; median vitta moderately broad, interrupted, distinct, uneven, pale grayish brown; lateral vitta moderately broad, pale grayish brown; ocular lobes moderately developed, dark reddish. Prosternal sulcus deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.40X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals slightly more convex and elevated, broader than even-numbered intervals, with setae inconspicuous, very short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, round, narrow, moderately deep, not wider than strial grooves; scales subgranulate, subcontiguous, finely pitted, round, arranged irregularly, brown, whitish and black; maculate; antedeclivital area of interval 3 with macula white; declivital callus of interval 5 with macula lacking; cuticle reddish. Metathoracic wing fully developed. Mesosternal process large, subtriangular between coxae. Metasternum 1.17X as long as sternum 1. Sternum 1 with median impression shallow, broad, continuous for entire length, not deeper and slightly narrowed apically, not continued on sternum 2; apical margin not declivous; 1.23X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 basally convex; apical 1/2 steeply declivous; 1.70X as long as 3 & 4 together. Sternum 5 flat; with cluster of three to four suberect, coarse apicolateral setae; 1.51X as long as 3 & 4 together, 0.87X as long as 2, 0.70X as long as 1. Legs moderately long. Femora subclavate, reddish black. Tibiae moderately slender, dark reddish; inner margin weakly bisinuate; outer margin moderately arcuate toward apex (in lateral view); apices not narrowed; inner surface not denticulate, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately short, moderately stout, subequal to width of tibial apex. Tarsi moderately short, sublinear, reddish brown; tarsomeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.60 mm.

Female. Same as male except: rostrum 0.75X as long as pronotum. Antennae inserted at apical 2/5. Sternum 1 with median impression interrupted (basal and apical); flattened in middle 1/2. Length, pronotum and elytra: 2.60 mm.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 150). As in *B. lothari* except median lobe with extreme apex subtruncate, very bluntly rounded; orifice more or less oval,; weakly constricted behind dorsal process. Female. As in *B. lothari* (fig. 217).

INTRASPECIFIC VARIATION - The elytra varies slightly in length, and in convexity of the odd-numbered intervals, which are more or less evident than even-numbered intervals, and in the more or less pronounced declivital callus of interval 5. Size range 2.25-2.90 mm.

REMARKS AND COMPARATIVE NOTES - This species is closely related to *B. revelieri* and *B. lothari*, from which it differs by small features of the external morphology (see key to the species) and the median lobe of the aedeagus. We classified as *B. brevis* also four specimens from Zákynthos which have slightly more elongate and narrower (in comparison with the pronotal width) elytra than the specimens examined from northern and central Europe, while the genitalia do not show differences from these. They might actually represent a southern subspecies of *B. brevis* or a new species intermediate between *B. brevis* and *B. revelieri*.

BIOLOGICAL NOTE - The host plant of this species is *Ranunculus flammula* L. (Bangsholt, 1981; Cuppen & Heijerman, 1995). The larvae and adults were observed to feed on the leaves and stems of this plant indoors by Cuppen & Heijerman (1995), who carefully described the larval morphology. These authors reported also that the pupal stage, which might take place in the soil, lasted about seven days.

TYPE LOCALITY - Scania (Sweden).

NOTE ON TYPE SPECIMENS - We did not find type specimens. Therefore, we followed the general consensus of the species as treated by other authors, which agrees well with the original description.

SYNONYMIES - The synonymy of *B. armoricanus* (type locality: Morlaix, Finistère, France) with *B. brevis* was recently established by Dieckmann (1987) after his examination of the types which we also examined (MNHP).

RANGE - Northern and central Europe (Finland, Sweden, Denmark, Norway, Great Britain, northern France, Germany, Austria, Czech Republic), Greece (Zákynthos, see remarks).

MATERIAL EXAMINED - We studied 37 specimens from Sweden, Denmark, Poland, Germany, Austria, France and Greece [Zante, Kalamaki, 1909, legit M. Hilf, coll. O. Leonhard (1, DEIE); Jon. Inseln, Zante (3, SMTD)].

80. *Bagous revelieri* Tournier (figs. 152, 218)

Bagous revelieri Tournier, 1884: 106. Schilsky, 1907: 72. Hustache, 1927: 127, 133; 1930: 210, 226. Hoffmann, 1931: 70; 1954: 726, 734. Tempère & Péricart, 1989: 169.
Bagous lateralis Hustache 1937: 18 (**n. syn.**).

REDESCRIPTION - Same as *B. brevis* except: antennae with scape and funicle dark reddish; club reddish brown. Elytra 1.50X as long as wide; declivital callus of interval 5 moderately well-developed. Femora reddish black. Tibiae dark reddish. Genitalia. Male (fig. 152). Median lobe distinctly constricted behind dorsal process, distinctly enlarged toward base. Female (fig. 218). Sternum VIII with arms moderately broad. Gonocoxae broadest about middle, slightly arcuate.

INTRASPECIFIC VARIATION - The body varies slightly in the length of the pronotum and elytra and in the width of the elytra in respect to the pronotum. Size range 2.50-2.90 mm.

REMARKS AND COMPARATIVE NOTES - This species appears to vicariate with the closely related *B. brevis* in the southwestern Palearctic region.

BIOLOGICAL NOTE - Péricart collected this species in large series in the marshes near Porto Vecchio at the foot of *Apium crassipes* (Koch) Reichemb. in May (Tempère & Péricart, 1989).

TYPE LOCALITY - Porto Vecchio (Corse).

NOTES ON TYPE SPECIMENS - We examined six syntypes (two by two mounted on the same label) respectively labelled "Porto V., Corse, Reveli. / type / Type" (Tournier collection, MNHP, two males; we designated the specimen mounted on the right as lectotype), "Porto Vecchio, Reveliere / type / Type" (Tournier collection, MNHP, one male mounted on its dorsum and one female), and "Porto Vecchio, Reveliere / Coll. Tournier" (MHNG, one male and one female), and one syntype labelled "Porto V., Corse, Revelie. / Coll. Tournier" (MHNG, female).

SYNONYMIES - *Bagous lateralis* was described based on specimens from Timhadit (Morocco), of which we examined one female preserved in the Hoffmann collection (MHNP) and labelled "Timhadit, 1900 m / Alluaud / *Bagous lateralis* Hust." corresponding well to the original description (lectotype here designated). We did not observe distinctive features between this specimen and the type specimens of *B. revelieri*.

RANGE - Southern Spain, Corse, Sardinia, Morocco, Algeria.

MATERIAL EXAMINED - Apart from the type specimens (see above) 57 nontype specimens. Italy: Sardegna, 12.VI.1888 (1, MHNP); Sardaign., 10.VI.1889 (1, MHNG); Cossina, Sardaign. (1, MHNG); Sardegna, Gesturi, Giara (3, OVCK); Oristano, XII.1898, U. Lostia (1, MNHB); Oristano, XII.1898 (3, MGCD). France: Corse, Damry (2, BMNH; 6, MHNP); Corsica, Reveliere (1, CWOB); Corsica (7, MNHB; 1, UJIZ; 9, MSNM; 1, IZWP); Porto Vecchio, 16.V.1955 (2, UJIZ); Porto Vecchio (3, MNCN); Maroc (3, MHNP; 1, MHNG). Spain: Spain, Algaida nr. Bonanza, Sanlucar de Barrameda, 17-23.IV.1963, B. M. Goodings (1, BMNH). Morocco: Casablanca, IV.1921, Antoine (1, MHNP); Maroc, Sebou, Thery (1, MHNP); Sidi Barazem, 25.VI.1936, leg. Otin (1, MHNP); Tanger (1, MHNP); Tanger, Olcèse (1, MHNG); Timhadit, 2000 m, Antoine (1, MHNP). Algeria: Algérie, Kerrata, A. Thery (1, MHNP).

Bagous transversus group

This species group is characterized by: denticulate apicolateral surface of median lobe (below and distad of orifice) (except for *B. similis* O'Brien from India); median lobe deeply incised laterally behind dorsal process and markedly constricted there, very slightly asymmetrical distad of orifice; inner surface of dorsal process denticulate, appearing to be "open" above and projecting distad (fig. 164).

This largely widespread group presently includes *B. limosus*, common in the western Palearctic region, *B. transversus* LeConte, widely distributed in North America, *B. youngi* O'Brien & Morimoto from Japan, *B. loisae* O'Brien and *B. similis* from the Indian Subcontinent and two undescribed species from the eastern Palearctic region.

81. *Bagous limosus* (Gyllenhal) (figs. 47, 164, 219)

Rhynchaenus limosus Gyllenhal, 1827: 566.
Bagous limosus (Gyllenhal), Gyllenhal, 1836: 547; 1845: 77. Brisout, 1863: 509. Thomson, 1865: 182. Reitter, 1916: 210. Hansen, 1918: 135, 138. Hustache, 1930: 208, 229. Hoffmann, 1954: 725, 736. Dieckmann, 1964a: 93. Lohse, 1983: 51.
Bagous laticollis Gyllenhal, 1836, 548.
Bagous obscurus Rey, 1895: 38.
Bagous marginicollis Hustache, 1937: 17 (**n. syn.**).

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum short, 0.73X as long as pronotum, black with apex reddish brown, subcylindrical; dorsal curvature moderate and even; ventral curvature weak and even; not more distinctly depressed toward apex; ventral margin subangulate, not carinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, contiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye just above middle. Head with swelling beside eye lacking; eyes weakly convex, medium-sized, 0.47X as long as head across ocular lobes; scales nongranulate, contiguous, finely pitted, round, brownish; supraocular setae few, short, indistinct, subrecumbent, straight, coarse, scale-like, linearly arranged. Frons broad, 0.61X as wide as head across eyes, weakly convex, shallowly impressed, indistinctly set off from rostrum by shallow impression; not sulcate nor foveate medially. Antennae inserted just behind apical 1/3; scape moderately short, moderately slender, subclavate; scape and funicle reddish brown; funicle long, 1.00X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 fused with club, with pubescence distinctly denser than other segments; club oval, 0.54X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum transverse, 0.78X as long as broad; moderately expanding from base; apical constriction moderate, in apical 1/5, dorsally shallower medially; sides strongly rounded behind constriction, sides slightly impressed behind round area; median sulcus lacking; disc transversely moderately convex, weakly rugulose; apical and marginal setae lacking; scales subgranulate, indistinctly pitted, subcontiguous, round, brownish; with 3 vittae; median vitta moderately broad, complete, distinct, straight, pale tan; lateral vitta moderately broad, pale tan; ocular lobes moderately developed, reddish black. Prosternal sulcus moderately deep, broad, weakly narrowed at apical constriction, biangulate; side margins moderately raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum large. Elytra gradually expanding behind humeri to declivity; 1.36X as long as wide; disc area moderately convex; declivity at 60 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri poorly developed, obliquely angulate; even-numbered intervals moderately convex; odd-numbered intervals very slightly more convex and elevated, with setae inconspicuous, very short. subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 lacking; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures large, round, broad, moderately deep, wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; humeri with macula grayish white; antedeclivital area of interval 3 with macula grayish white; cuticle dark brown. Metathoracic wing fully developed. Mesosternal process large, subrectangular between coxae. Metasternum 1.11X as long as ster-

num 1. Sternum 1 with median impression moderately deep, broad, interrupted (basal and apical), deeper apically; flattened in middle 1/3; apical margin declivous; 1.12X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 2.12X as long as 3 & 4 together. Sternum 5 with median subapical and pair of subbasal lateral impressions; basally transversely convex; median impression very shallow, broad, subtriangular; lateral impressions shallow, elongate, slightly deeper than median impression; with cluster of three to four suberect, coarse apicolateral setae; 1.50X as long as 3 & 4 together, 0.71X as long as 2, 0.68X as long as 1. Legs moderately long. Femora subclavate, black. Tibiae moderately slender, reddish brown; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface with denticles several, indistinct, minute, with moderately long bristles; outer surface with short, moderately distinct bristles; uncus moderately long, moderately slender, as long as width of tibial apex. Tarsi long, linear, reddish brown; tarsòmeres 1-3 slightly widened toward apex; tarsomere 3 not wider at apex than 2, sublinear, subemarginate; tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 2.95 mm.

Female. Same as male except: rostrum 0.77X as long as pronotum, broadly subcylindrical; very slightly depressed in apical 1/2. Antennae inserted just in front of middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 164). Median lobe with dorsal surface, excluding orifice and area behind dorsal process, fully sclerotized; ventral surface fully sclerotized; widest at orifice, slightly constricted behind orifice, parallel-sided to base; extreme apex elongate, subacute, narrowly rounded, in lateral view slender, evenly and moderately curved, tapering; post-orificial dorsal process directed slightly apicad, with setal brush situated ventromedially; inner surface of dorsal process open, covered with dense area of denticles; deep incision at base of dorsal process; dorsal surface behind dorsal process with broad, deep depression; dorsal surface behind dorsal process membranous in broad oval area; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; ventrobasally medially depressed. Orifice triangular, elongate; proximal margin concealed by dorsal process. Apodemes tapering, short, curving strongly inward and with extreme apex sinuate, 0.16X as long as median lobe. Internal sac without orificial sclerites; without internal structures. Tegmen with cap-piece. Female (fig. 219). Sternum VIII with apical setae numerous, very short, slender; arms broad, apically convergent, with inner margins sinuate, with outer margins broadly, shallowly emarginate; fenestral area open, triangular. Apodemes markedly divergent from ca midlength, narrowly separated to near base. Spermatheca with ramus indistinct, not extending past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus more or less flat. Gonocoxae short, robust. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; somewhat produced medially, narrowly reflexed, forming distinct lip and broad, subapical transverse furrow; apicolaterally angulately swollen. Pygidium with apex broadly, very shallowly emarginate.

INTRASPECIFIC VARIATION - The described pattern sometimes is scarcely distinct and in some specimens the vestiture is nearly unicolorous, brown with paler maculae on the humeri and the antedeclivital portion of interval 3. The pronotum can be more or less transverse, with the

sides more or less markedly divergent from the base. The sides of the elytra can be subparallel to distinctly rounded. Size range 2.40-3.30 mm.

REMARKS AND COMPARATIVE NOTES - In the external morphology and especially in the shape of the pronotum, this species can be confused with the species of the *B. sardiniensis* group, from which it differs clearly by the deep and large punctures of the striae. *Bagous limosus* is very closely related to a new species that replaces it in the Eastern Palearctic Region (Kazakhstan) and essentially differs in the shape of the apex of the median lobe as quoted also by Dieckmann (1983).

BIOLOGICAL NOTE - This species lives mainly in pools, on plants of the genus *Potamogeton* (*P. lucens* L., *P. natans* L. and *P. crispus* L.).

TYPE LOCALITY - Dalekarlia (Sweden).

NOTES ON TYPE SPECIMENS - We examined the lectotype (male) labelled "c Dalekarlia Uppsala Univ. Zool. Mus. Gyllenhals saml. TYP. nr. 1371 Lectotypus *Bagous limosus* Gyll. design. N. Bruce - 66" and one paralectotype both preserved at ZMUU.

SYNONYMIES - *Bagous laticollis* was described from specimens from Paris (France) and subsequently synonymyzed with *B. limosus*. We did not examine the type specimens but based on the original description we have no doubt of the synonymy. The synonymy of *B. obscurus* with *B. limosus* was established by Hustache (1930) by the examination of the types. *Bagous marginicollis* was described from one male from "Timhadit, 1900 m, Ch. Alluaud", presently preserved in the Hoffmann collection (MHNP). Hustache wrote that in this specimen the base of the pronotum is prominent. However, this feature was only due to a deposit of earth, which we removed uncovering the usual pronotal texture. Based on this and by the examination of the median lobe we established that this species is synonymous with *B. limosus*.

RANGE - This species is common in the whole of Europe, western Siberia, western Asia, and western North Africa.

MATERIAL EXAMINED - We studied about 500 specimens from Sweden, Poland, Germany, Hungary, Austria, Great Britain, France, Spain, Italy, Croatia, Bosnia, Serbia, Albania, Greece, Azerbajdzan, Iran, Morocco.

Bagous frit group

This group is characterized by: median lobe T-shaped in cross-section, markedly constricted ventrally; dorsal surface flat behind dorsal process, distinctly narrowly depressed and markedly cleft immediately behind dorsal process, with margin of cleavage very finely denticulate; inner surface of dorsal process denticulate; apicolateral margin of median lobe denticulate ventrad and slightly distad of orifice; apex very markedly asymmetrically deflected to left and asymmetrically explanate; apodemes short and markedly incurved (fig. 165).

This group is presently based on the European species, *B. frit*, and the Japanese species, *B. fritodes* O'Brien & Morimoto.

82. *Bagous frit* (Herbst) (figs. 48, 92, 165, 220)

Curculio frit Herbst, 1795: 265.

Rhynchaenus frit (Herbst), Gyllenhal, 1827: 567.

Bagous frit (Herbst), Gyllenhal, 1836: 549. Boheman, 1845: 79. Brisout, 1863: 503. Schilsky, 1907: 68. Hansen, 1917: 356. Hustache, 1930: 220. Neresheimer & Wagner, 1930: 276. Hoffmann, 1954: 726, 728. Dieckmann, 1964a: 97, 101; 1983: 362, 367. Leiler, 1987: 13.
Parabagous frit (Herbst), Sharp, 1917a: 28.

REDESCRIPTION - Male. Body medium-sized, moderately elongate-oval, moderately robust. Rostrum moderately long, 0.97X as long as pronotum, reddish black, subcylindrical; dorsal curvature moderate and even; ventral curvature weak; not more distinctly depressed toward apex; basolateral sulcus deep, broad, long, coarsely punctate; ventral margin subangulate, subcarinate; sides subparallel, gradually expanding in apical 2/3; scales dense in basal 2/3, not granulate, subcontiguous, pitted, round, grayish brown. Scrobe with dorsal margin reaching eye at upper 1/3. Head with swelling beside eye lacking; eyes weakly convex, small, 0.38X as long as head across ocular lobes; scales subgranulate, subcontiguous, pitted, round, brownish; supraocular setae few, short, indistinct, recumbent, curved, coarse, linearly arranged. Frons broad, 0.63X as wide as head across eyes, moderately convex, deeply impressed, not set off from rostrum by impression; median sulcus deep, moderately broad, long. Antennae inserted just behind apical 1/3; scape moderately short, moderately slender, subclavate; scape and funicle reddish; funicle moderately long, 0.85X as long as scape, segment 1 stout, 2 slender, 1 and 2 subequal in length, 3-6 short, 7 short and strongly transverse; segment 7 nearly fused with club, with pubescence distinctly denser than other segments; club oval, 0.54X as long as funicle, reddish brown, uniformly pubescent, segment 1 as long as segments 2-4. Pronotum weakly transverse, 0.85X as long as broad; very rounded from base; apical constriction moderate, in apical 1/5, dorsally distinct and uniform; sides weakly rounded behind constriction, not impressed somewhat behind round area; median sulcus distinct, broad, complete, of uniform depth and width or almost so; disc transversely weakly convex, rugulose; apical and marginal setae few, scarcely evident, short, recumbent, curved, coarse; scales granulate, finely pitted, subcontiguous, round, blackish brown; with 3 vittae; median vitta narrow, complete, distinct, straight, pale grayish; lateral vitta moderately broad, pale grayish; indistinct whitish brown maculae on disc; ocular lobes moderately developed, dark reddish. Prosternal sulcus deep, moderately broad, weakly narrowed at apical constriction, biangulate; side margins moderately sharply raised, lateral margin just in front of coxae (lateral view) rounded. Scutellum small. Elytra subparallel behind humeri to declivity; 1.48X as long as wide; disc area moderately convex; declivity at 75 degrees (in relation to dorsal plane); moderately wider than pronotum; apices nonacuminate, conjointly rounded; humeri moderately developed, obliquely angulate; even-numbered intervals weakly convex to flat; odd-numbered intervals not more convex nor elevated, with setae inconspicuous, short, subrecumbent, curled, fine, pale whitish; intervals 3-5 on disc slightly sinuately-sided; antedeclivital callus of interval 3 lacking; declivital callus of interval 5 weakly developed, subangulate; confluence of intervals 3 and 9 slightly swollen; strial grooves distinct, moderately deep, narrow; punctures small, round, narrow, moderately deep, not wider than strial grooves; scales subgranulate, contiguous, finely pitted, round, arranged irregularly, brown, and grayish white; maculate; humeri with macula pale whitish brown; cuticle reddish. Metathoracic wing fully developed. Mesosternal process small, subtriangular between coxae. Metasternum 1.16X as long as sternum 1. Sternum 1 with median impression shallow, broad, basal only, impression in basal 1/2, not deeper apically; convex in apical 1/2; apical margin

moderately declivous; 1.23X as long as 2; suture between 1 & 2 sinuate, uniformly deep. Sternum 2 convex; apical 2/5 declivous; 2.00X as long as 3 & 4 together. Sternum 5 with pair of subbasal lateral impressions; apicomedian and basal area flat; impressions shallow, large; with cluster of three to four suberect, coarse apicolateral setae; 1.58X as long as 3 & 4 together, 0.79X as long as 2, 0.66X as long as 1. Legs moderately long. Femora subclavate, dark reddish. Tibiae moderately slender, reddish; inner margin weakly bisinuate, outer margin strongly arcuate toward apex (in lateral view); apices not narrowed; inner surface except hind tibiae with denticles several, distinct, small, with conspicuous short bristles; outer surface with short, moderately distinct bristles; uncus short, stout, shorter than width of tibial apex; hind tibiae with 3 small denticles, with 3 setae on inner surface. Tarsi moderately short, broad, dark reddish; tarsomeres 1-3 broadened toward apex; tarsomere 3 slightly wider at apex than 2, subcordate, subemarginate (fig. 92); tarsomeres ventrally each with several long, apicolateral bristles, dorsally with coarse scale-like long setae. Length, pronotum and elytron: 3.00 mm.

Female. Same as male except: rostrum with ventral curvature moderate and even; very slightly depressed in apical 1/2. Antennae inserted just in front of middle.

GENITALIA AND ASSOCIATED STRUCTURES - Male (fig. 165). Median lobe with dorsal surface, excluding orifice and area behind dorsal process, fully sclerotized; ventral surface fully sclerotized; distinctly asymmetrical toward apex; widest at orifice, slightly constricted behind dorsal process, parallel-sided to base; extreme apex somewhat elongate, apical margin very broadly subacute, subapically constricted, explanate, in lateral view slender, declivous, acute; post-orificial dorsal process directed vertically, with setal brush situated anteromedially; inner, open surface of dorsal process covered with dense area of denticles; dorsal surface behind dorsal process with narrow, tapering, deep furrow; lateral margin behind dorsal process strongly costate; dorsal surface behind dorsal process membranous in small oval area; dorsobasal margin distinct, deeply emarginate; ventrobasal margin distinct, deeply emarginate; ventrally prominently medially raised, bicarinate from base to below orifice. Orifice more or less oval, elongate; proximal margin concealed by dorsal process. Apodemes tapering, short, curving strongly inward and with extreme apex sinuate, 0.13X as long as median lobe. Internal sac without orificial sclerites; internal structures lacking. Tegmen with cappiece. Female (fig. 220). Sternum VIII with apical setae several, short, slender; arms moderately slender, apically convergent, with inner margins sinuate, with outer margins broadly, shallowly emarginate; fenestral area open, elongate-narrow. Apodemes broadly divergent near apex only; narrowly separated to base. Spermatheca with ramus distinct, extending slightly past insertion of spermathecal duct, set off from body by shallow emargination; spermathecal gland arising at apex of ramus; nodulus more or less uniformly, slightly convex. Gonocoxae long, slender, tapering toward apex. Bursa copulatrix simple, without sclerites. Tergum VIII somewhat cordate; with apical margin somewhat produced medially and emarginate; apicolaterally angulately swollen; with lateral margins strongly inflexed ventrolaterally. Pygidium with apex deeply emarginate.

INTRASPECIFIC VARIATION - This is a uniform species lacking significant variation. Size range 2.70-3.60 mm.

REMARKS AND COMPARATIVE NOTES - Due to the rugosely sculptured pronotum and its deep longitudinal sulcus along the midline, and the shape of the tarsi, this species may be confused

with *B. dieckmanni*. However, apart from the strong differences in the shape of the genitalia, *B. frit* is smaller (2.70-3.60 mm vs. 4.50-5.10 mm), has more distinct denticles along the inner margin of the tibiae, and the female pygidium is strongly emarginate.

BIOLOGICAL NOTES. - Leiler (1987) observed that this species lives on *Menyanthes trifoliata* L, in Sweden. In May, the eggs are laid by the female of *B. frit* between the stem and the upper end of the leaf sheath of a young specimen of this plant, but it also damages the leaf sheath. Sometimes it can leave the tunnel and crawls externally along the stem reaching young leaves, on which it produces several small holes. Thereafter the larva returns to the tunnel, at the end of which it pupates. The pupal stage lasts 5-7 days and the adult emerges at the end of July. The larva is parasitized by *Bracon immotator* Nees.

TYPE LOCALITY - Germany (without further detail).

NOTE ON TYPE SPECIMENS - The type specimens were probably lost (Dieckmann, 1983). Since the species as presently considered has a clear identity, according to the Art.75 b of ICZN, it is not necessary to designate a neotype.

RANGE - Northern and central Europe (from Slovakia and Poland to northern France) with the southern limit in Tirol.

MATERIAL EXAMINED - We studied 24 specimens from Sweden, Denmark, Poland, Germany, Great Britain.

ACKNOWLEDGMENTS

We would like to thank the curators (named in Materials) for loan of specimens on which this study is based. Especially we thank Drs. Miguel A. Alonso Zarazaga and Enzo Colonnelli for their helpful comments and criticism of this manuscript. Also we would like to thank Miss Elena Caldara for her secretarial assistance and Mrs. Massimo Calvi, Walter Fogato and Adriano Ongaro for the fine photographs which illustrate the text.

Research leading to this publication was supported in part by a travel grant U. S. Army Corps of Engineers to study types in London and Paris. Research also was partially supported by a research program [FLAX 50006, CSREES (Cooperative State Research, Education and Extension Service, U. S. D. A.)]

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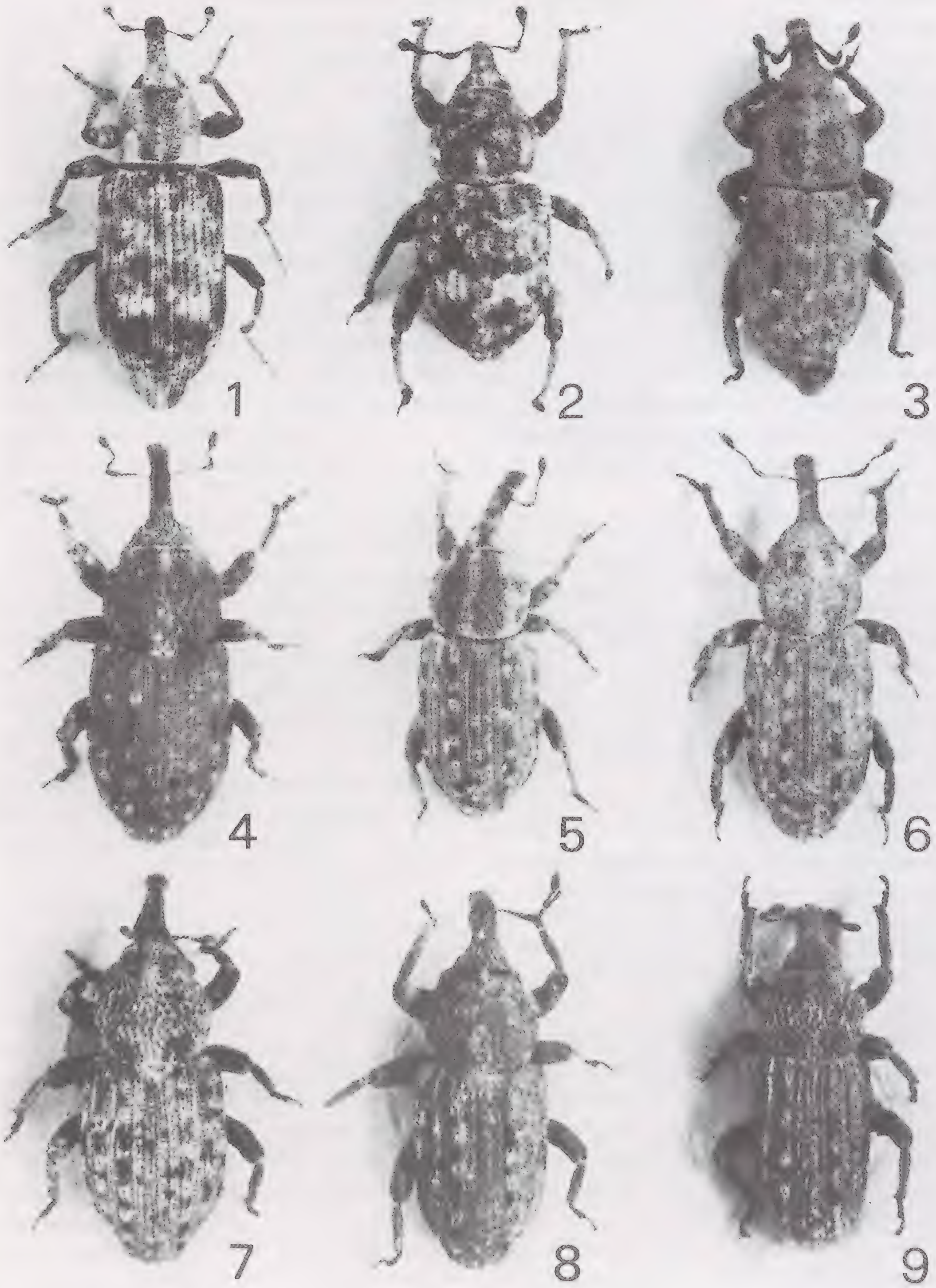

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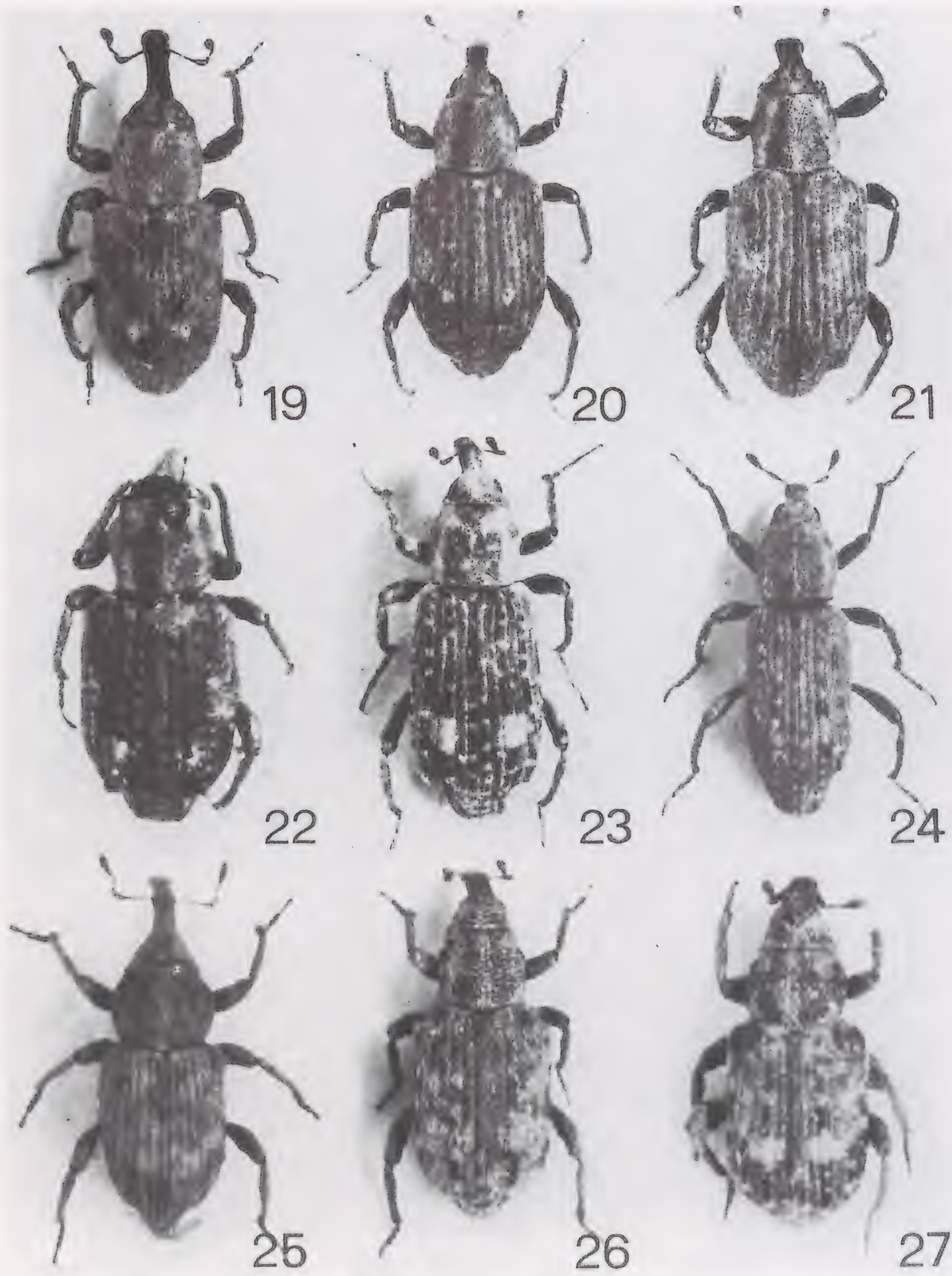

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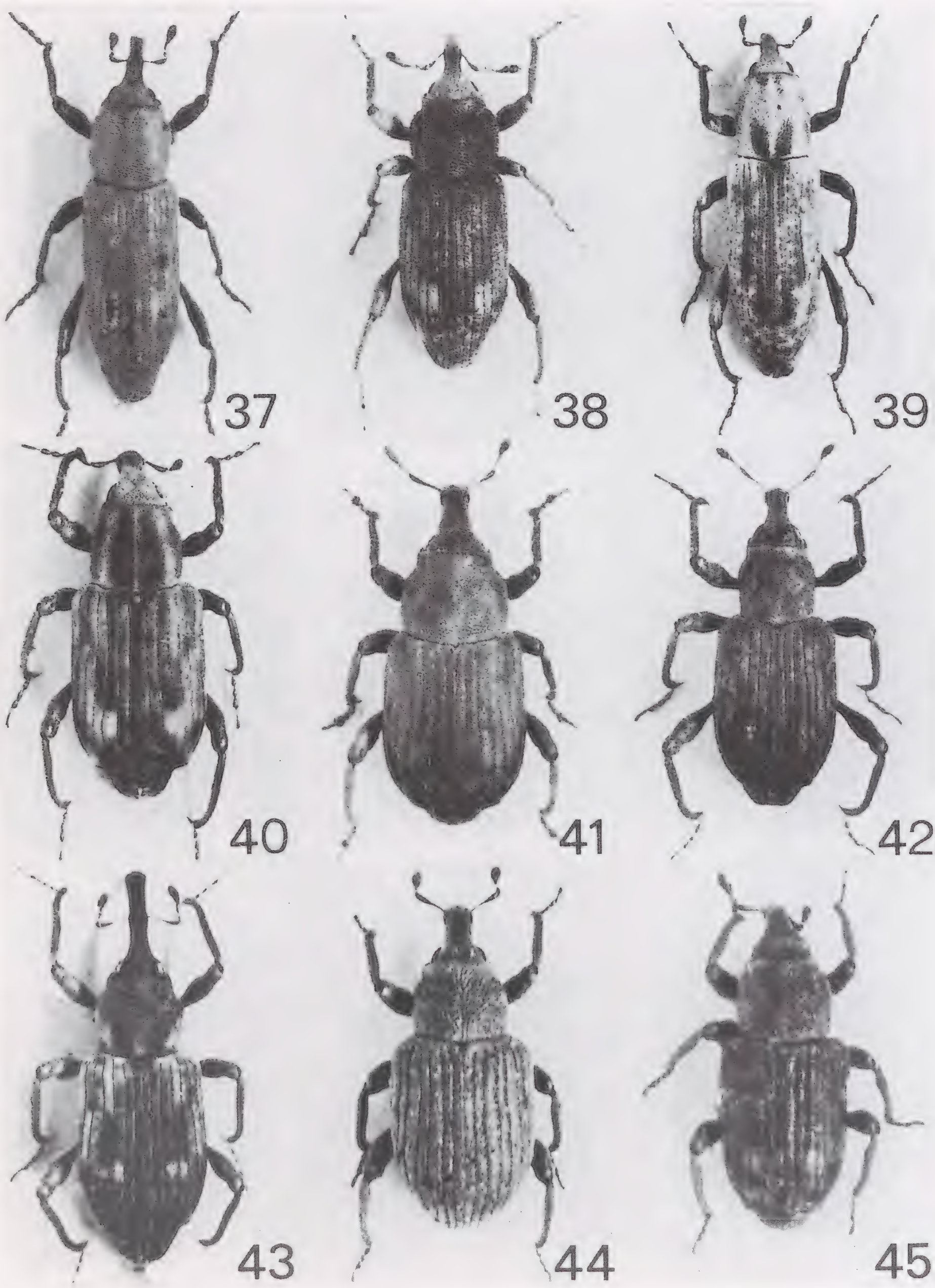

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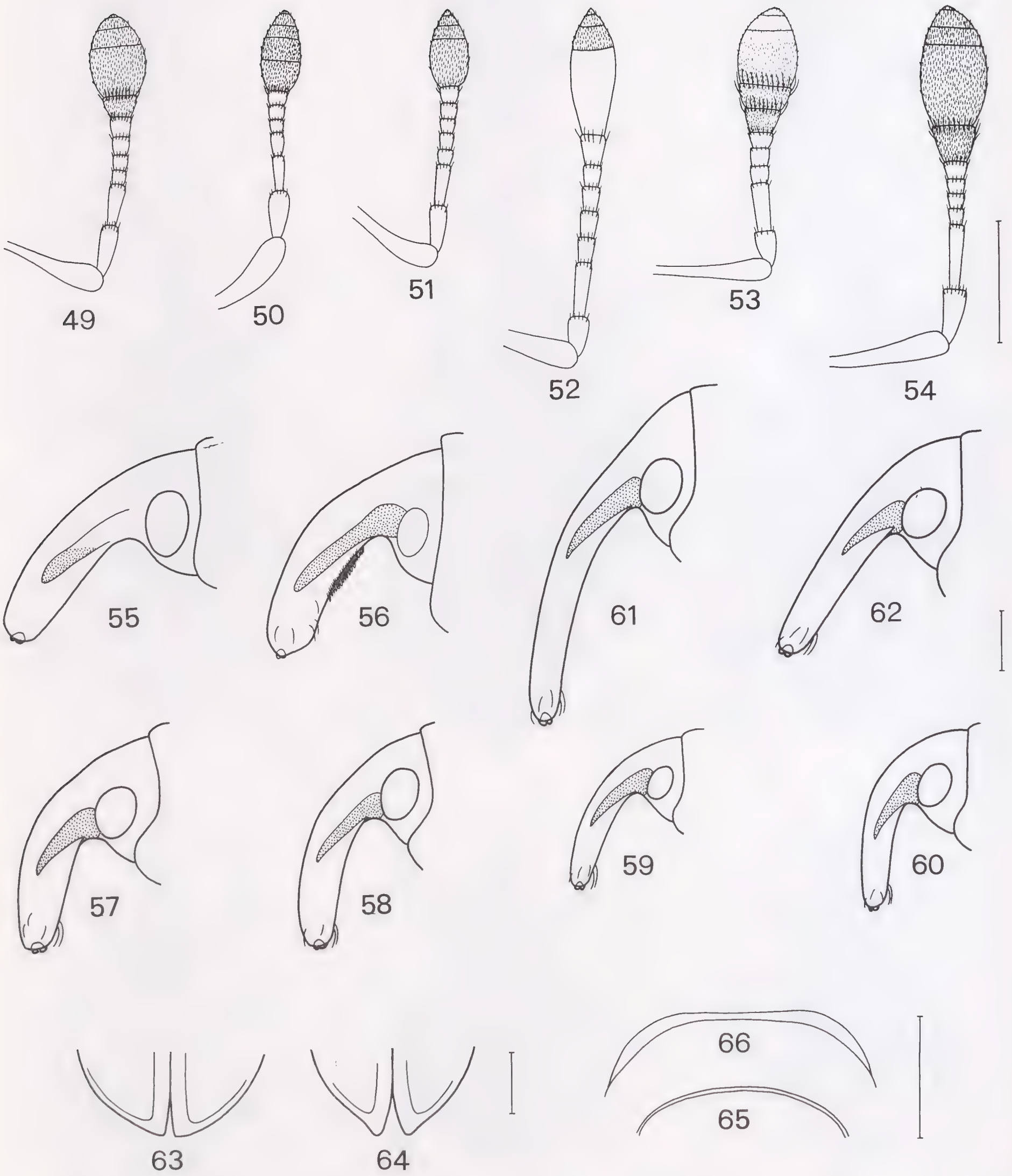

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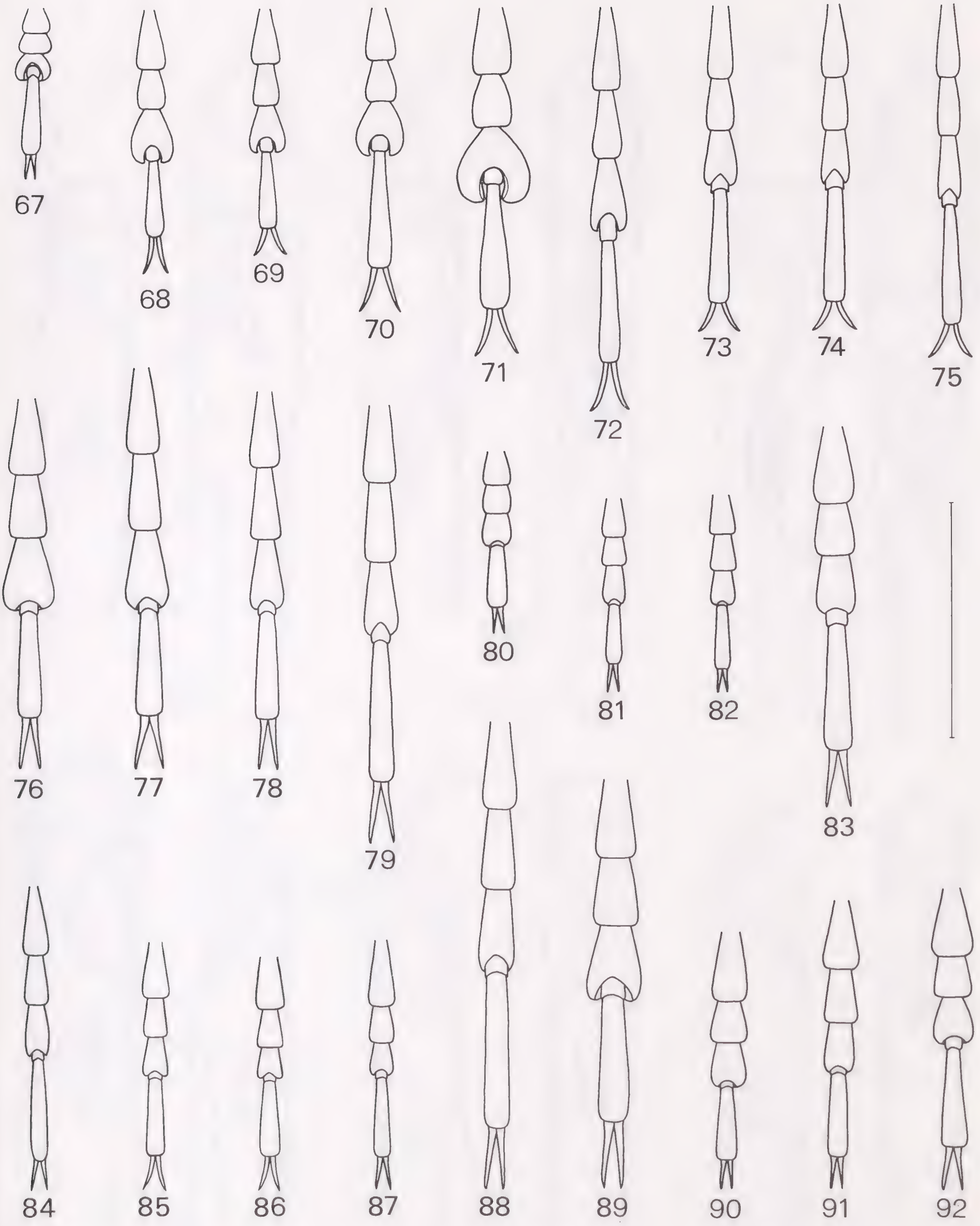

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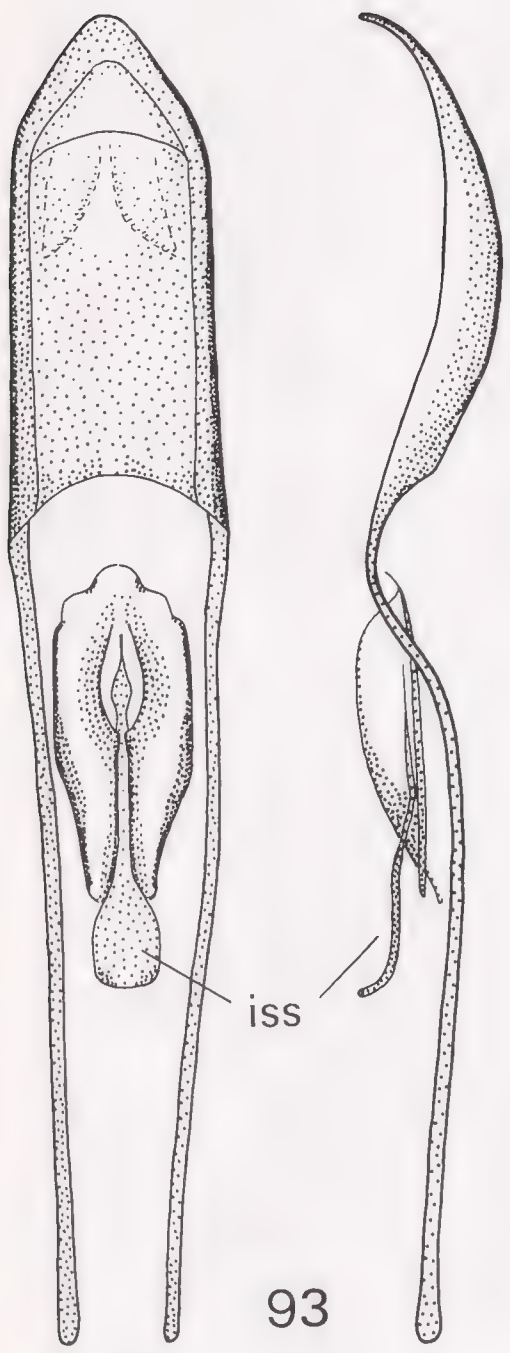

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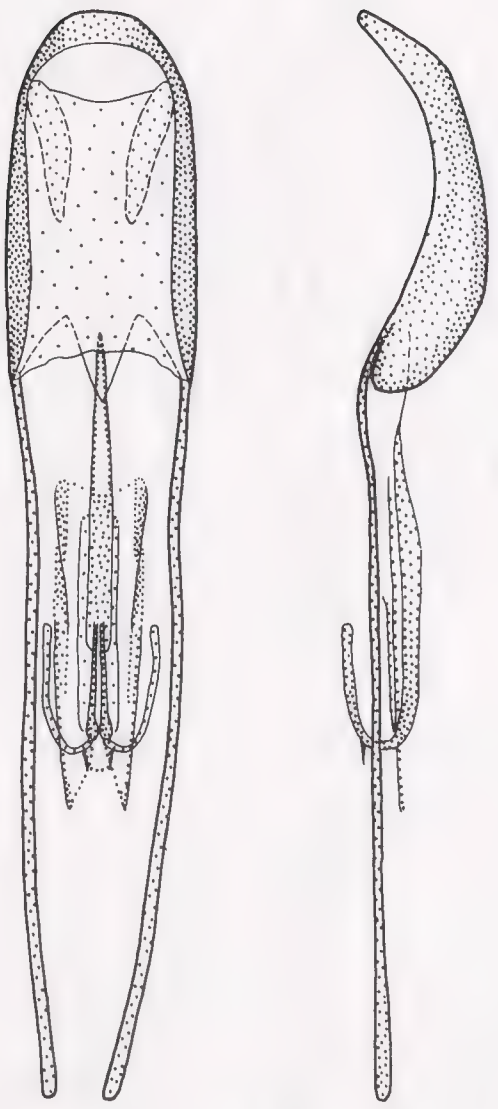

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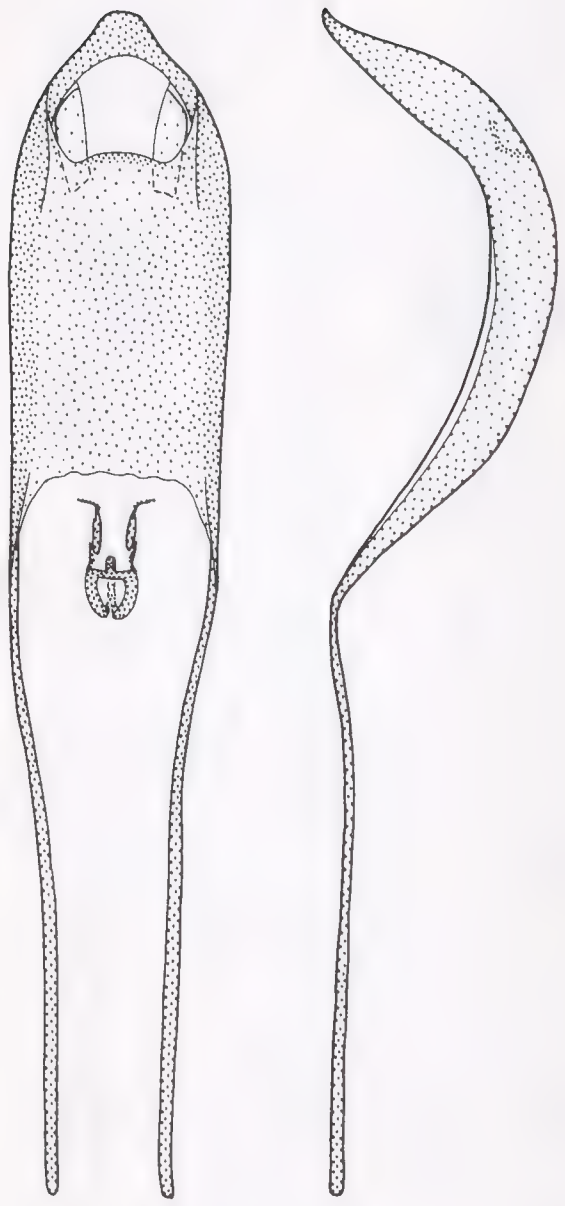

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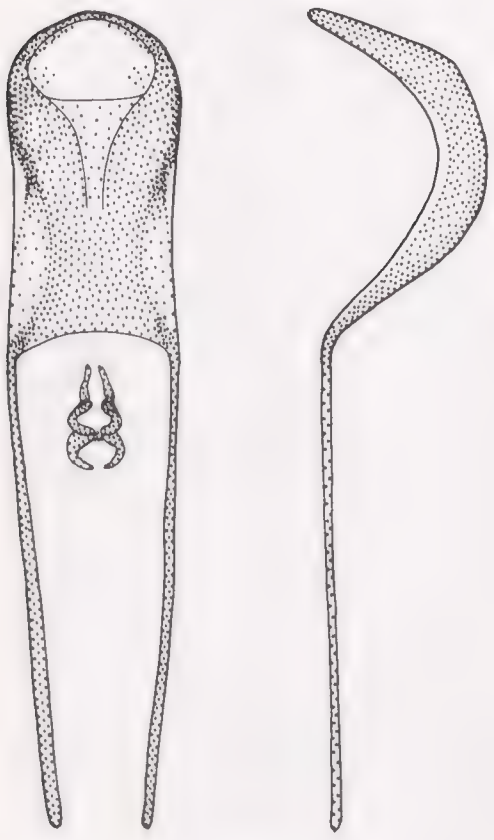

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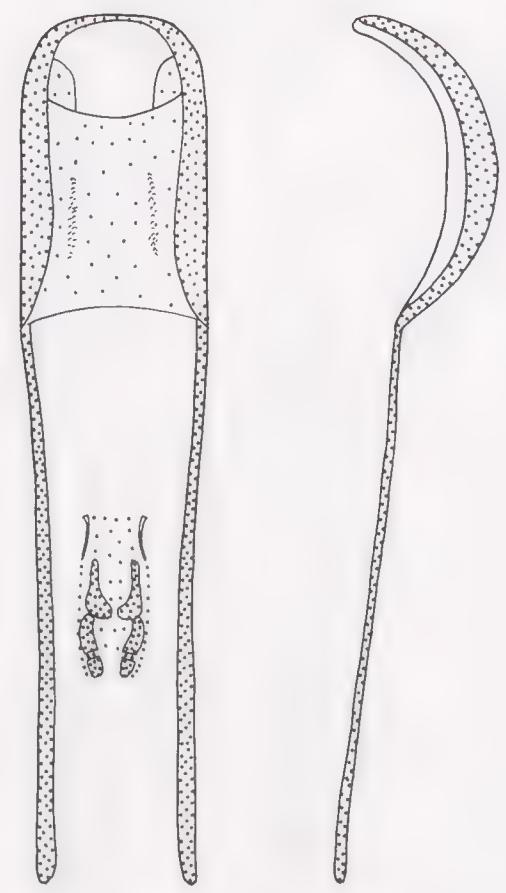

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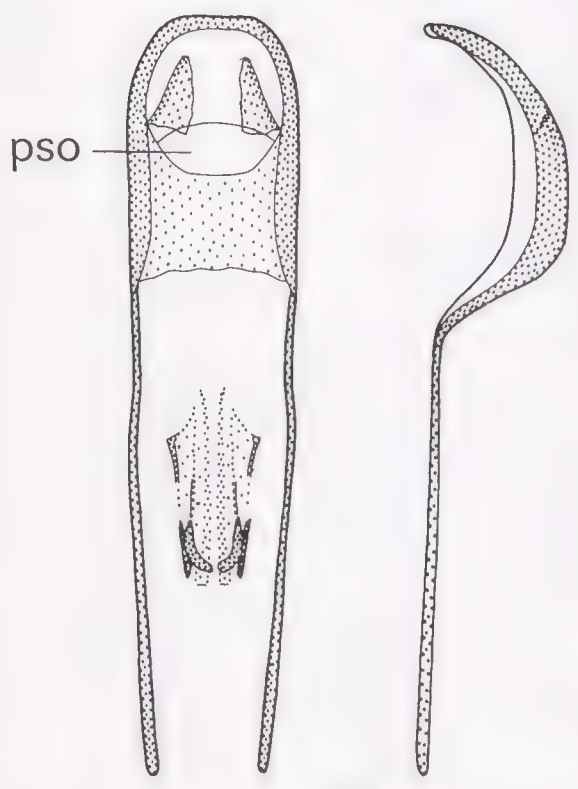

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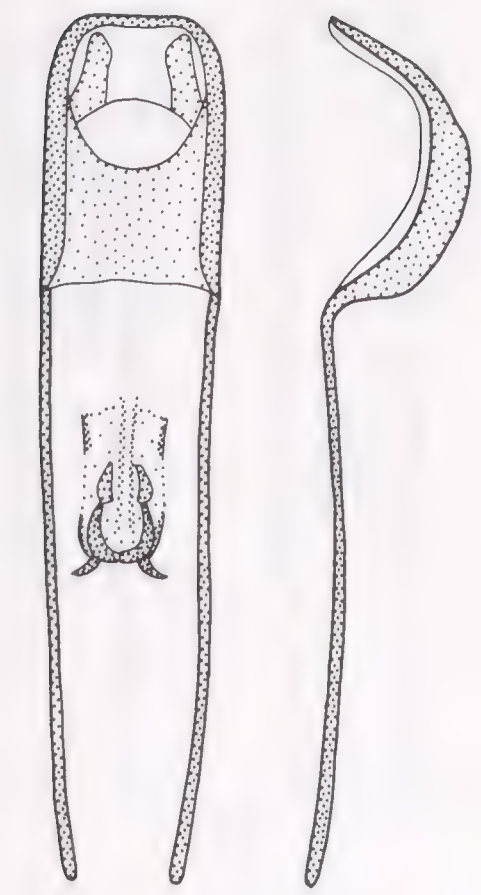
Figs. 93-98 - Median lobe in dorsal and lateral view of: 93. *Bagous alismatis*; 94. *B. brevipennis*; 95. *B. cyperorum*; 96. *B. belloi*; 97. *B. epirotes*; 98. *B. anatolicus*. Abbreviations: iss = internal sac sclerites; pso = pseudo-orifice. Scale = 0.5 mm.



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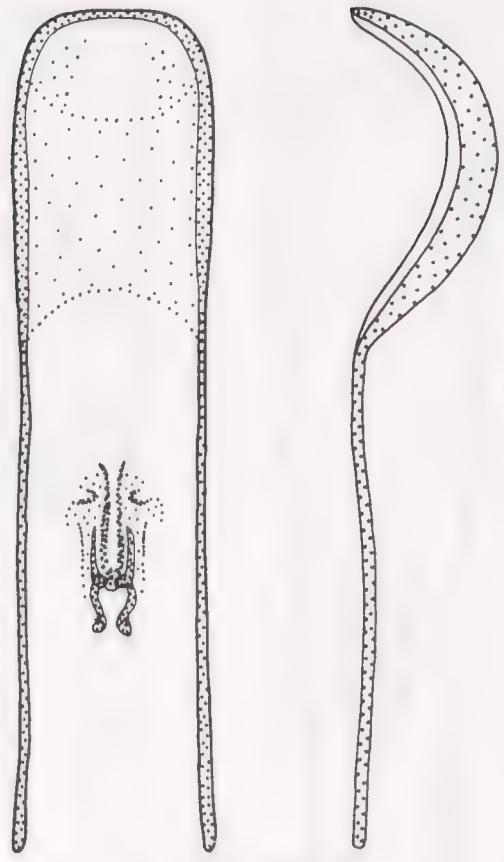

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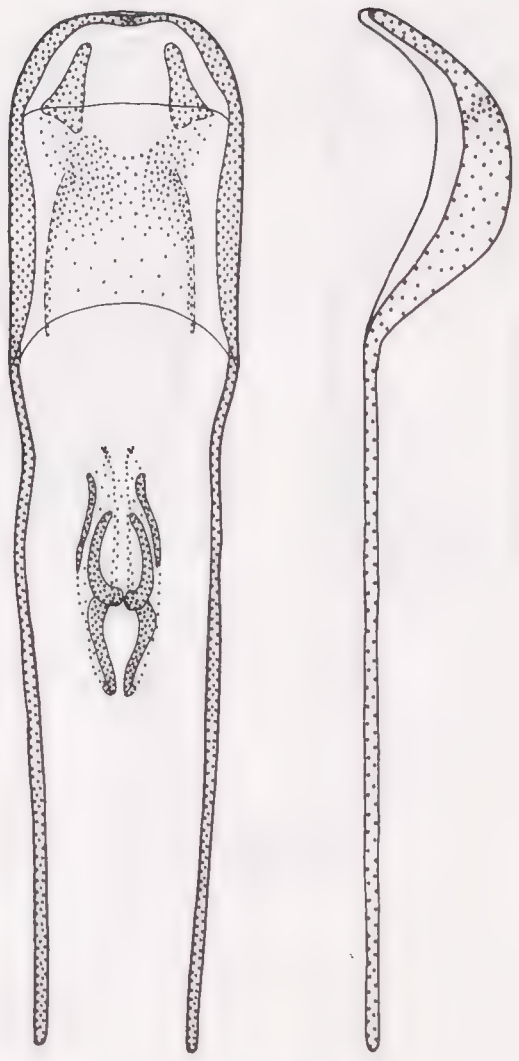

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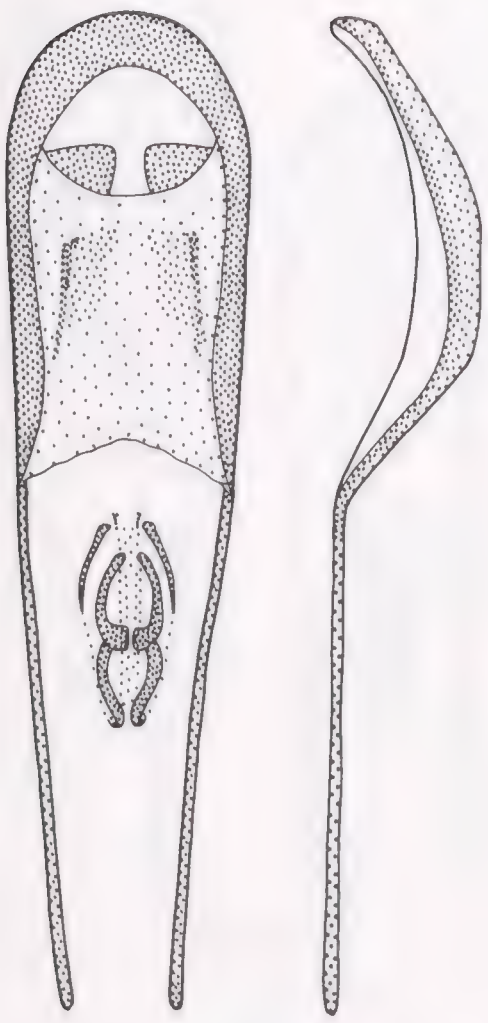

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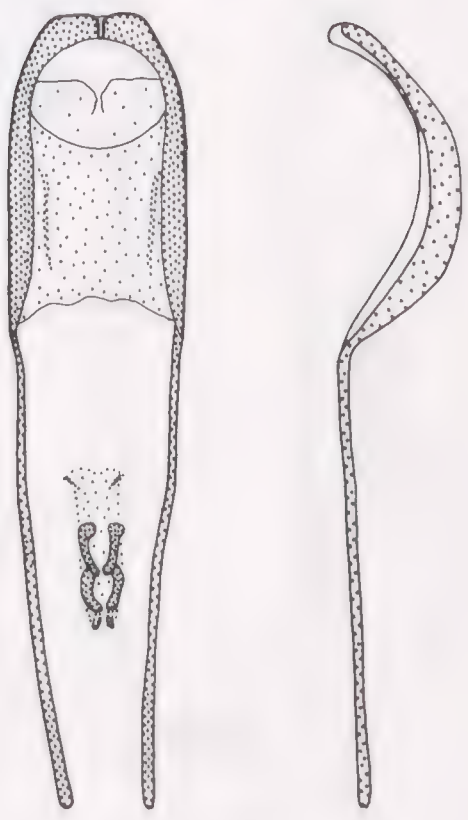

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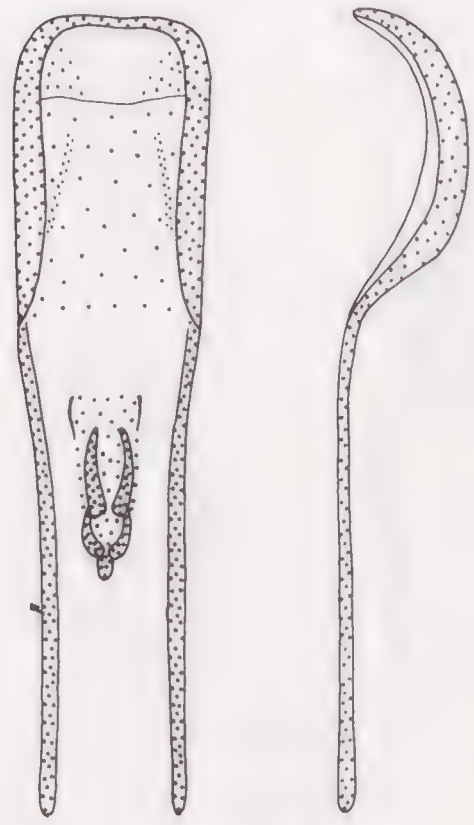

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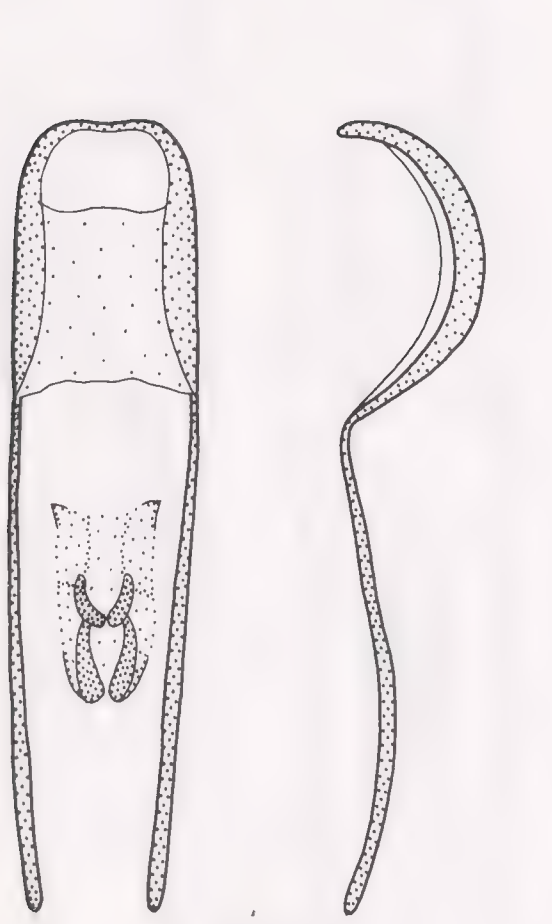
Figs. 99-104 - Median lobe in dorsal and lateral view of: 99. *Bagous osellai*; 100. *B. gracilentus*; 101. *B. rudicollis*; 102. *B. lyauteyi*; 103. *B. franzi*; 104. *B. freti*. Scale = 0.5 mm.



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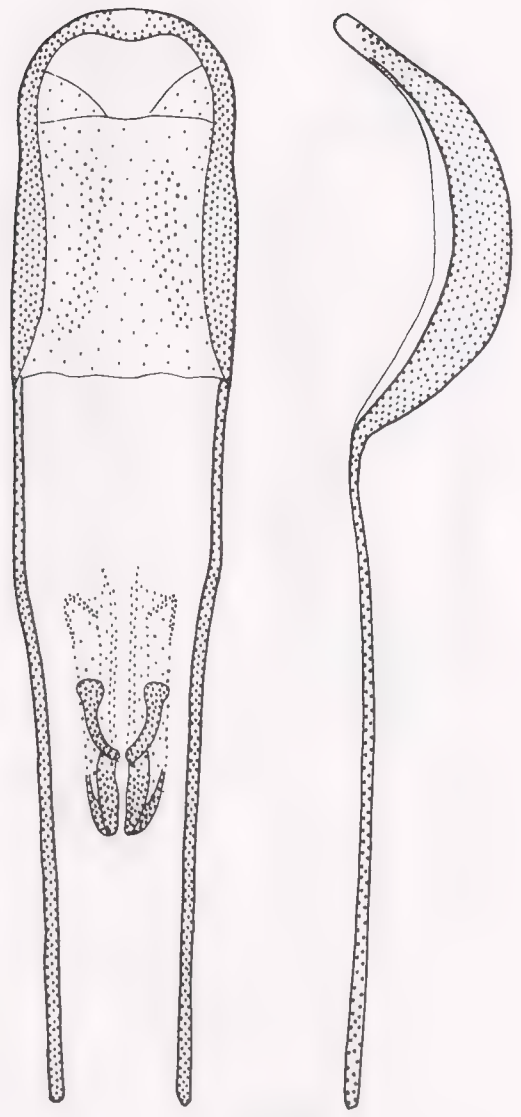

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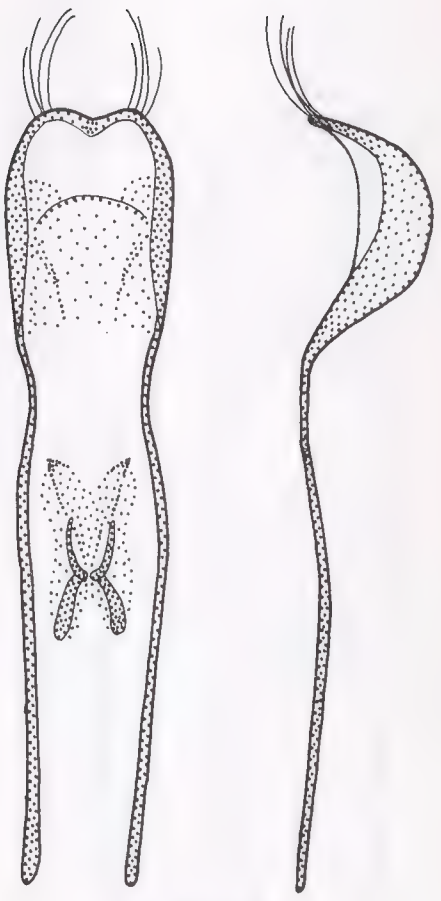

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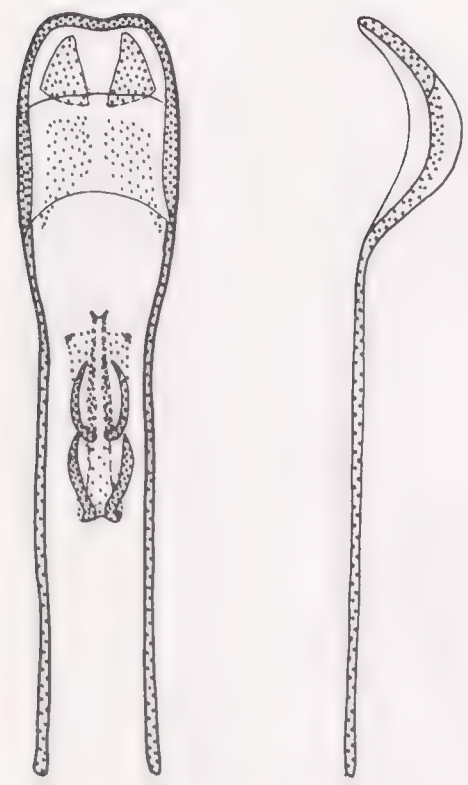

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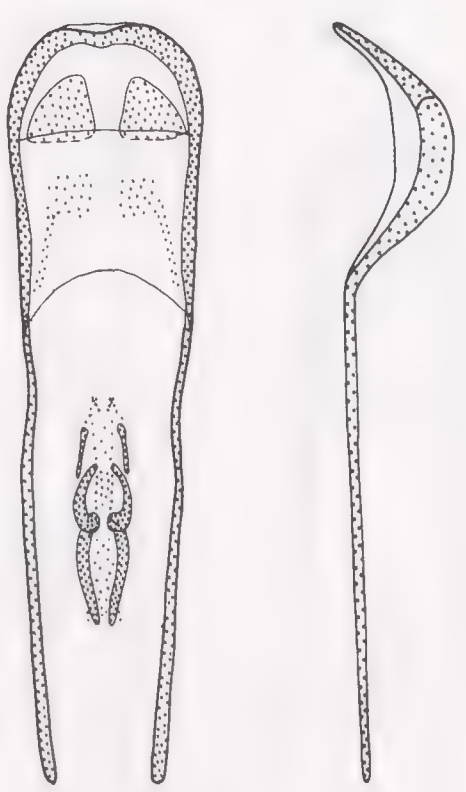

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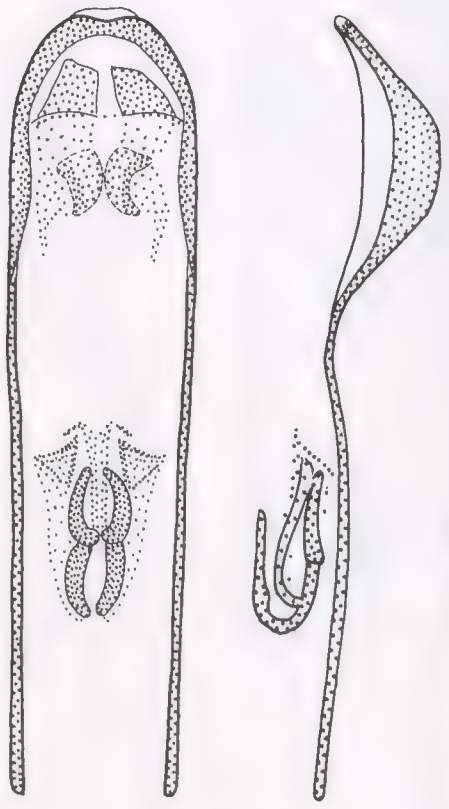

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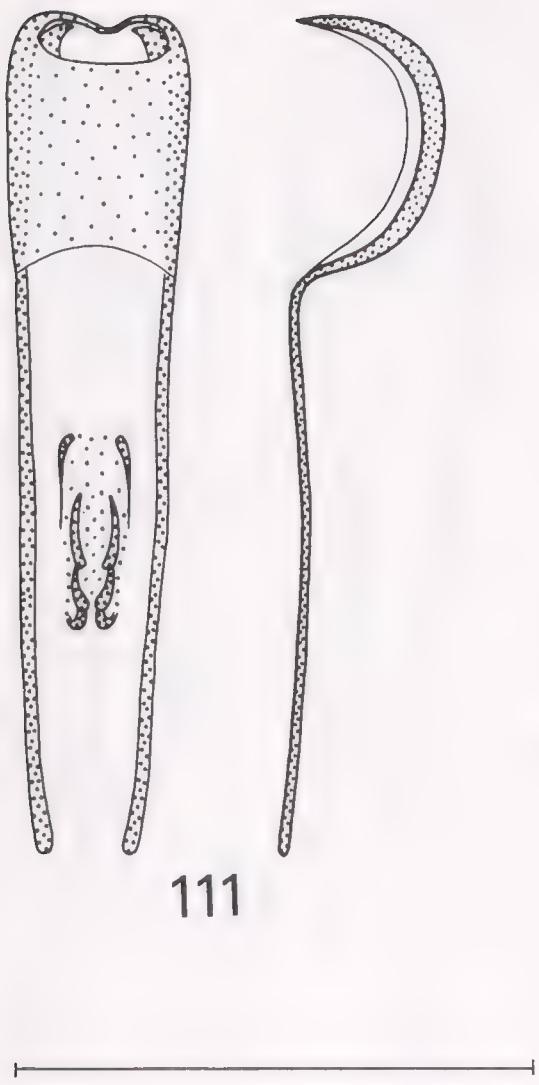
Figs. 105-110 - Median lobe in dorsal and lateral view of: 105. *Bagous cosiensis*; 106. *B. andalusiacus*; 107. *B. longirostris*; 108. *B. guttatus*; 109. *B. marocanus*; 110. *B. chevrolati*. Scale = 0.5 mm.



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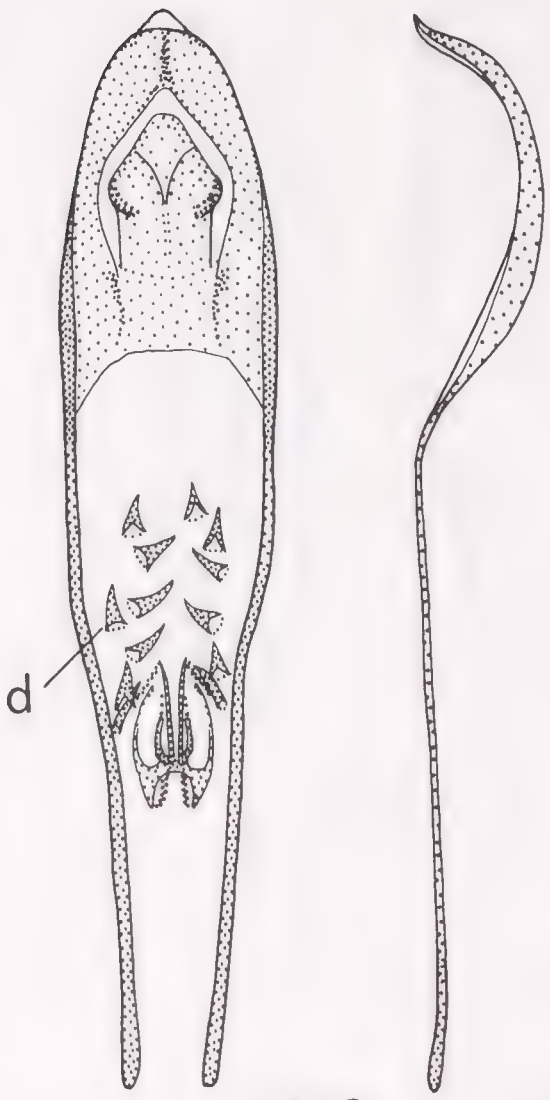

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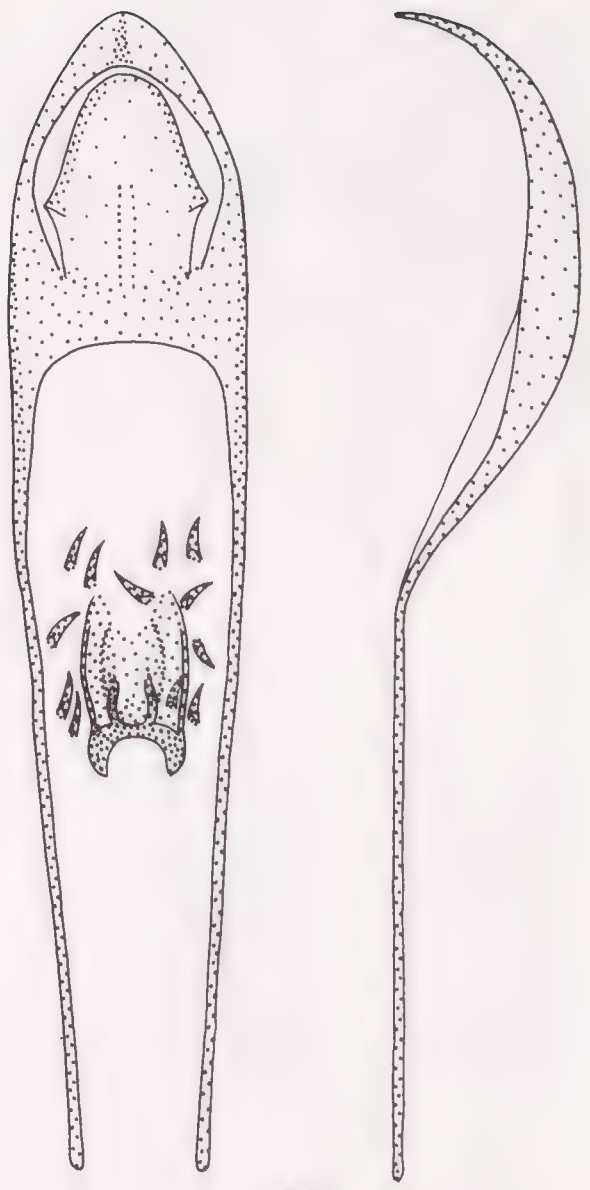

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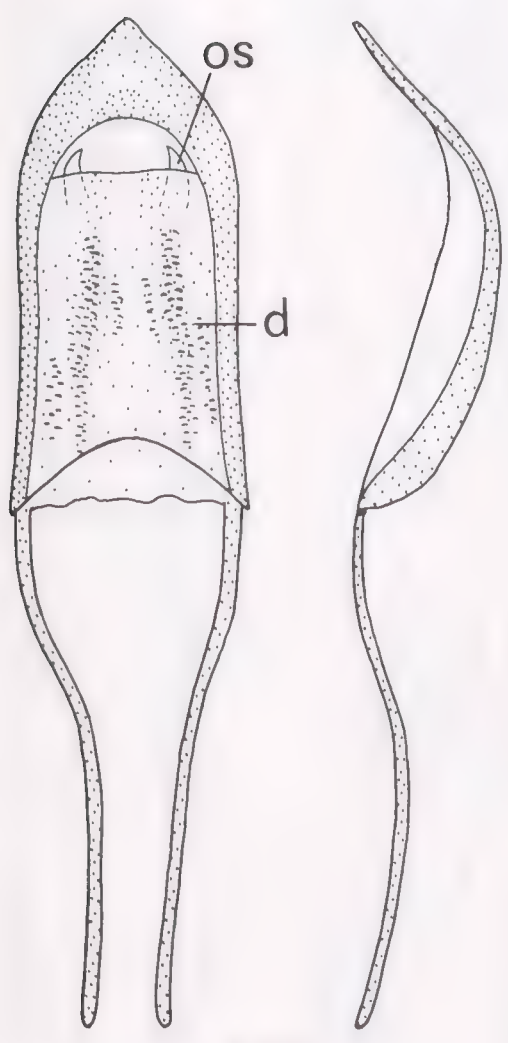

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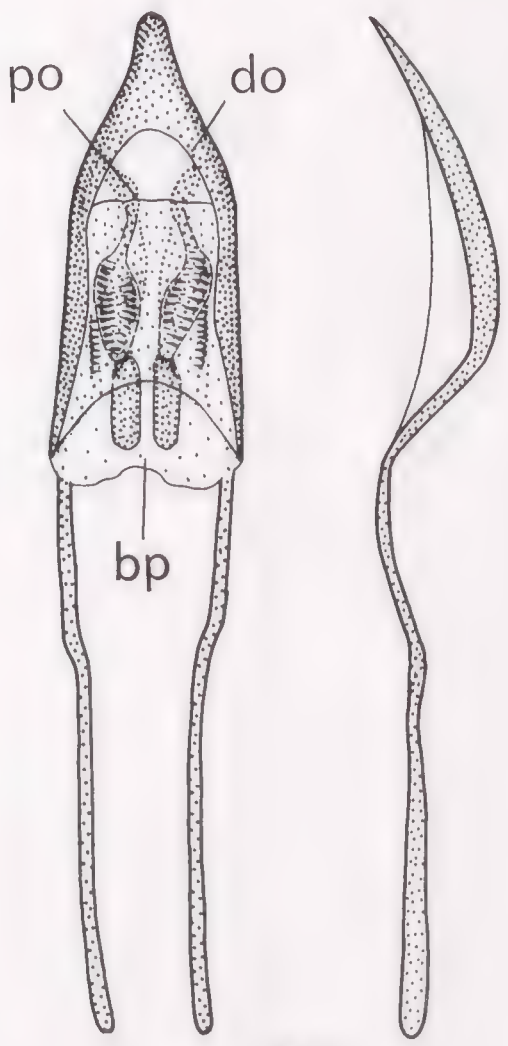

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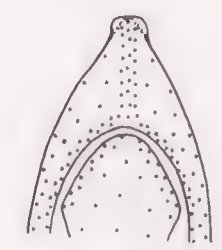
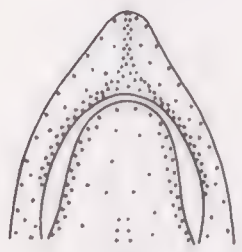
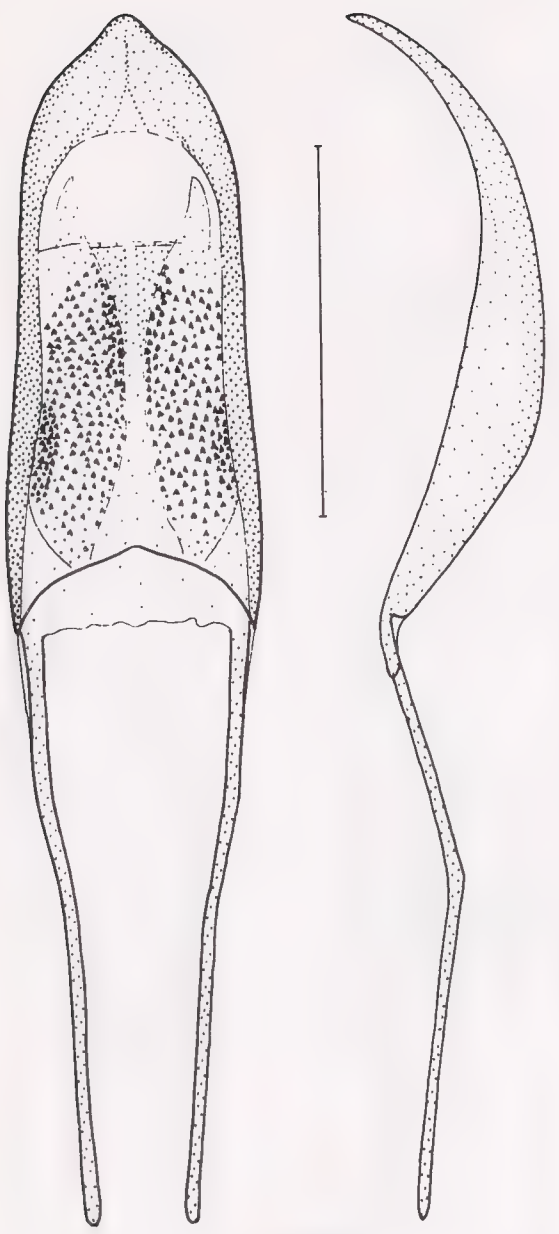


112a



113a

Figs. 111-115 - Median lobe in dorsal and lateral view and apex (a) of: 111. *Bagous ibericus*; 112. *B. costulatus*; 113. *B. sabellai*; 114. *B. glabrirostris*; 115. *B. bagdatensis*. Abbreviations: bp = basal plate; d = denticles; do = distal orificial margin; os = orificial sclerites; po = proximal orificial margin. Scale = 0.5 mm.



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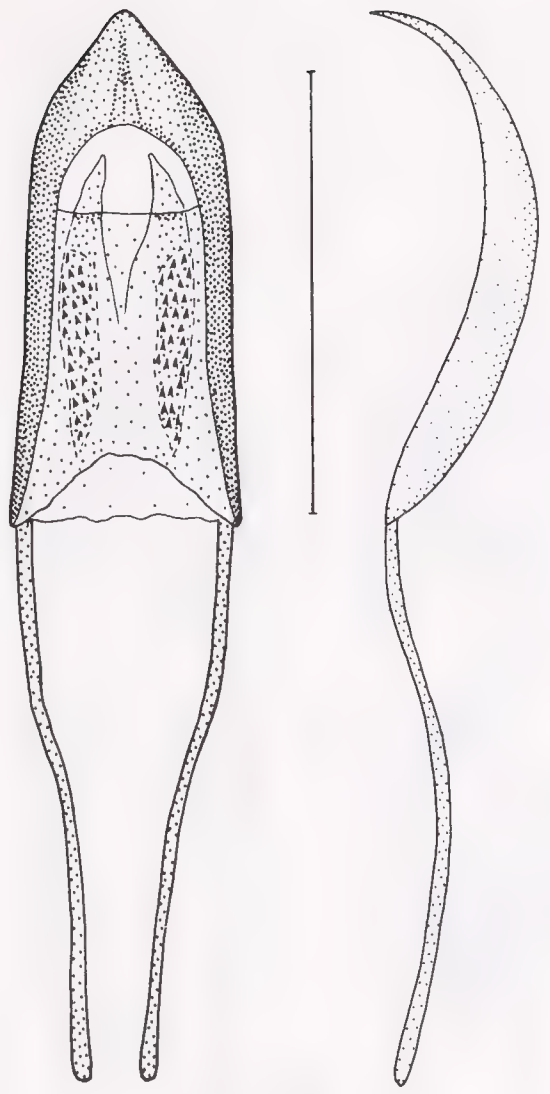

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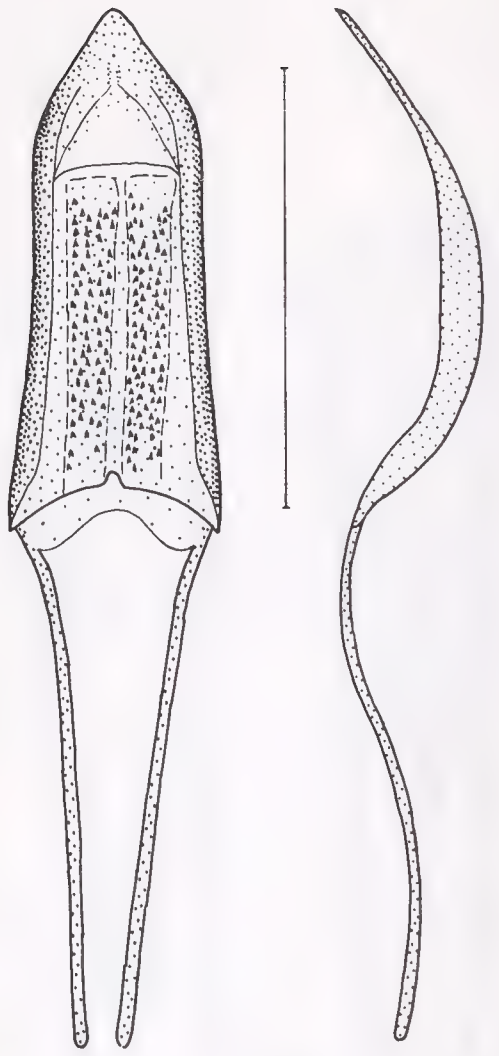

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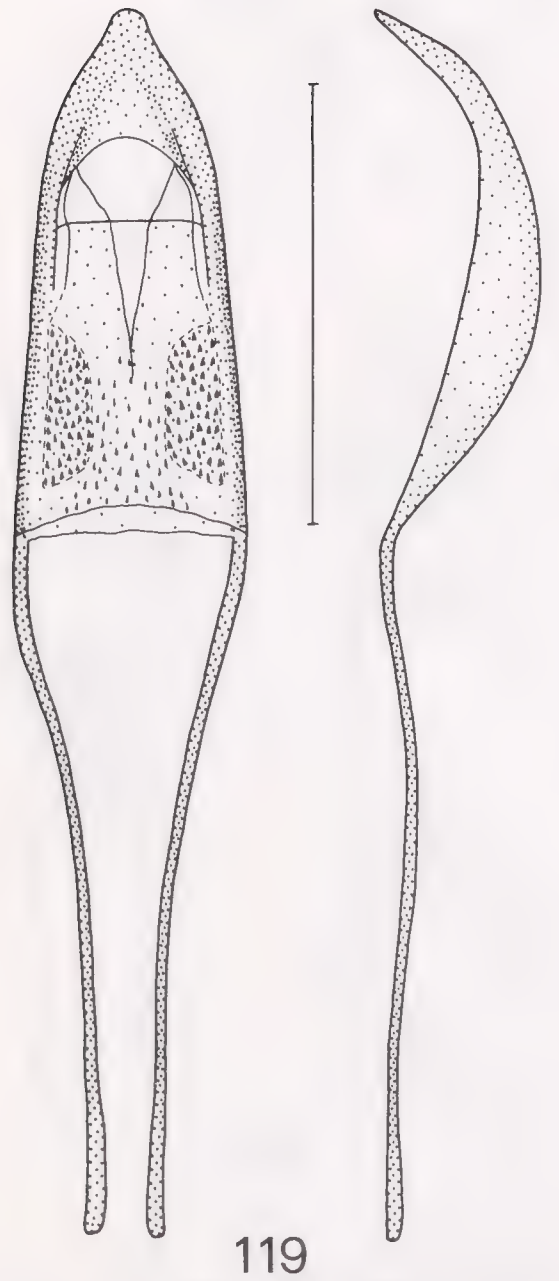

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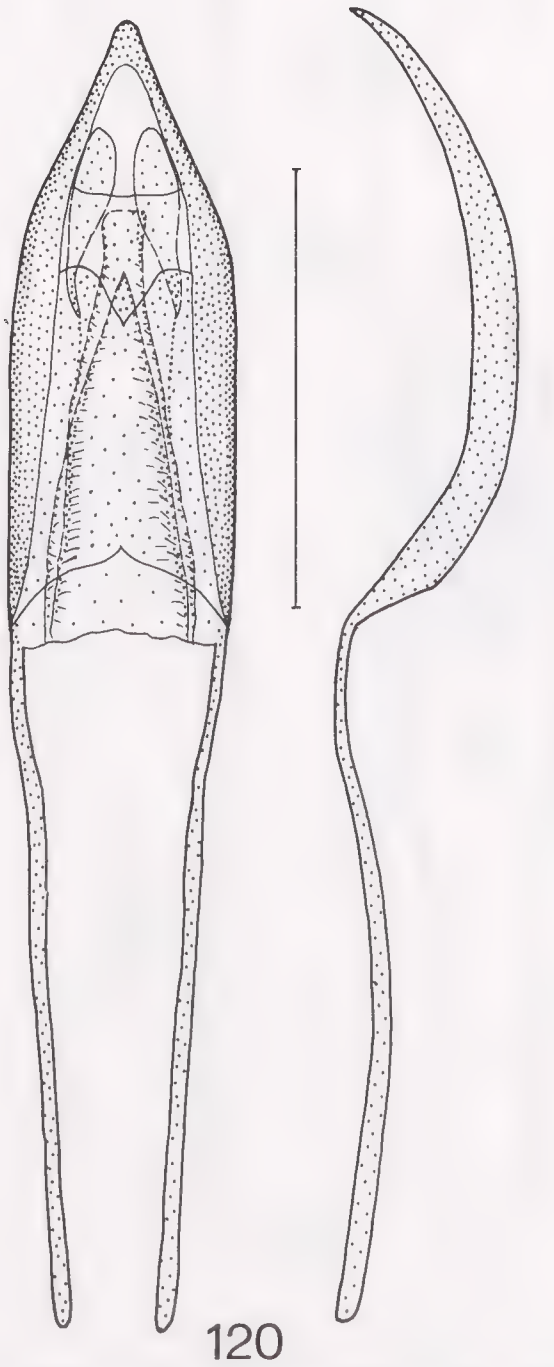

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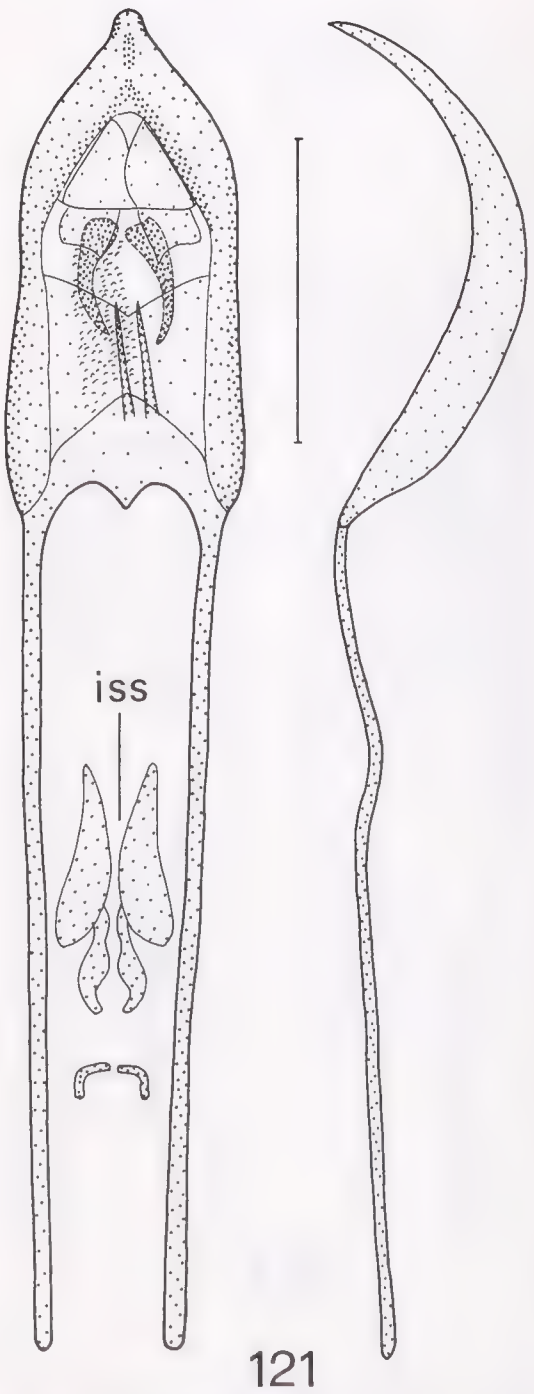
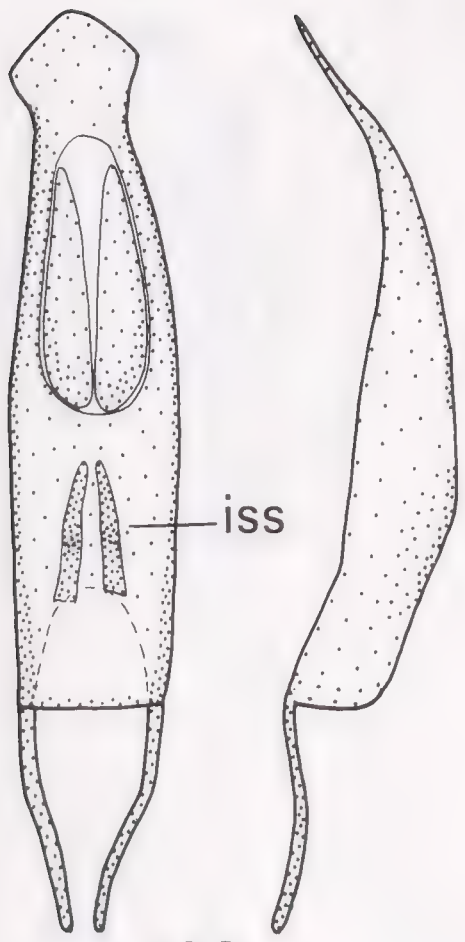


121

Figs. 116-121 - Median lobe in dorsal and lateral view of: 116. *Bagous robustus*; 117. *B. olcesei*; 118. *B. lutulentus*; 119. *B. puncticollis*; 120. *B. subcarinatus*; 121. *B. binodulus*. Abbreviations: iss = internal sac sclerites. Scale = 0.5 mm.



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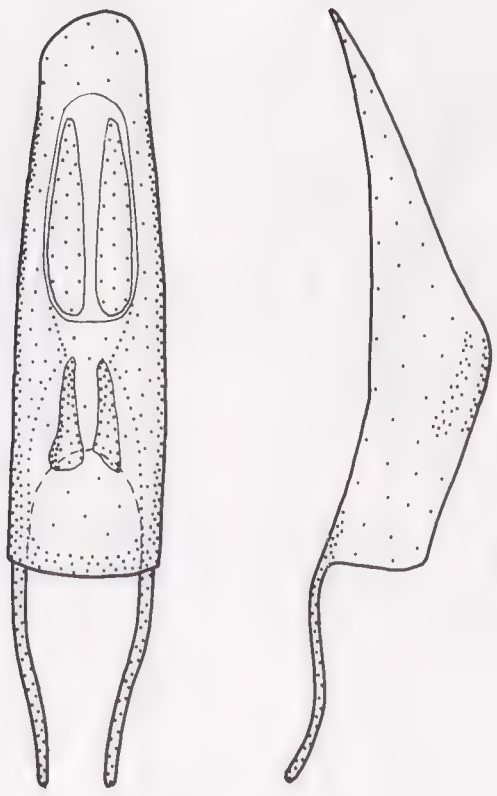

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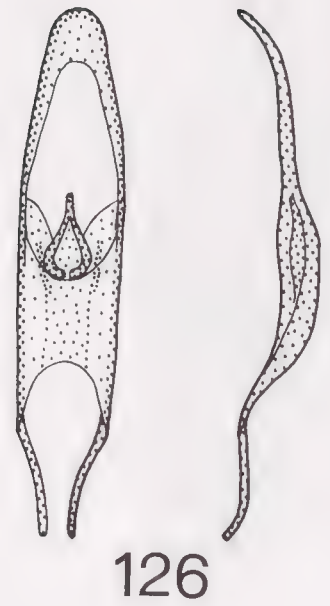

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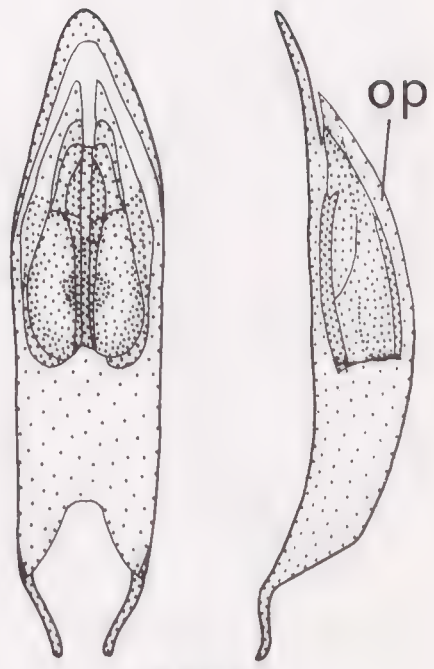

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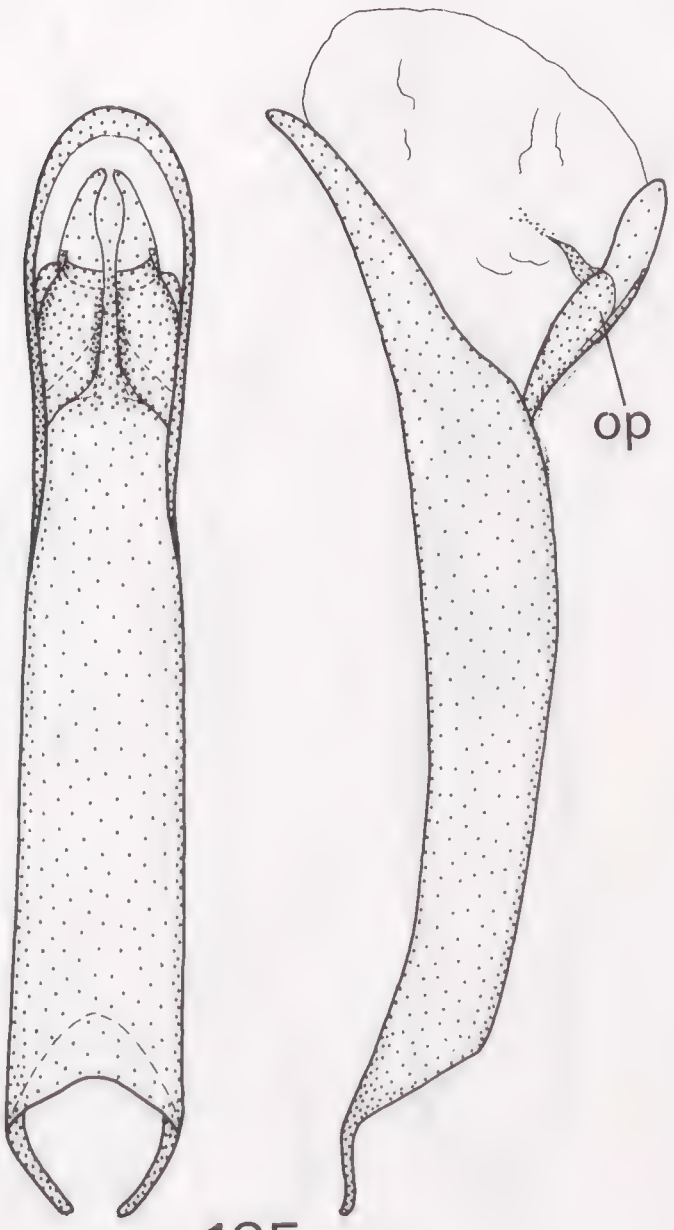

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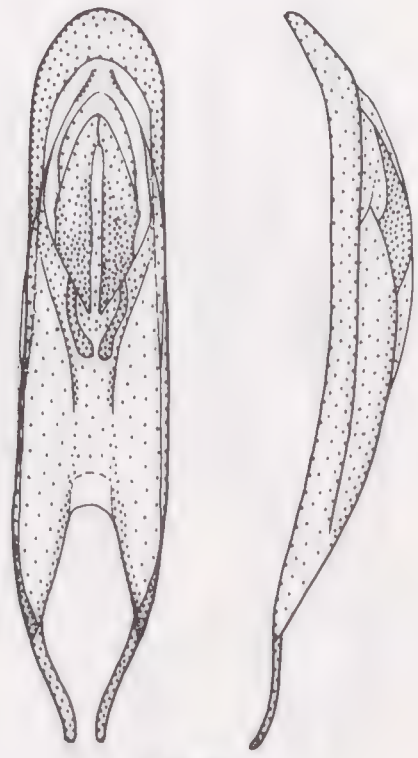
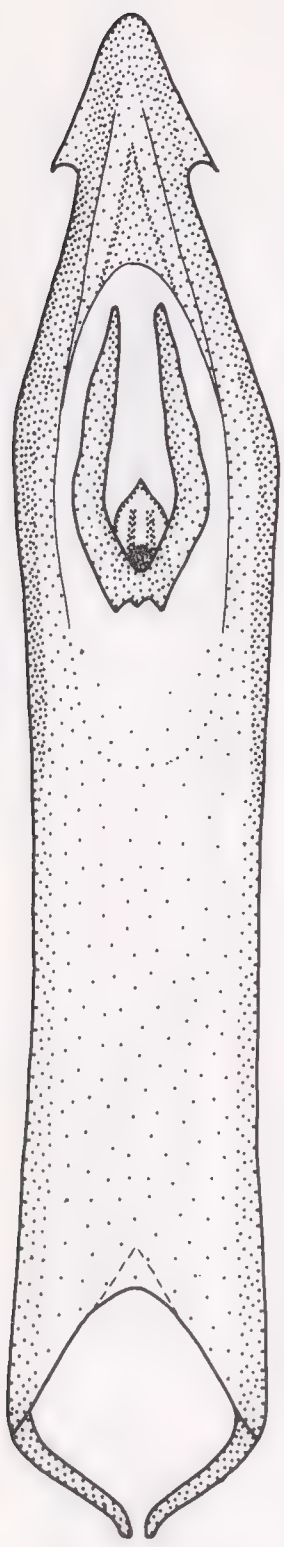


128

Figs. 122-128 - Median lobe in dorsal and lateral view of: 122. *Bagous affaber*; 123. *B. latepunctatus*; 124. *B. macedon*; 125. *B. czwalinai*; 126 *B. exilis*; 127. *B. septemcostatus*; 128. *B. subruber*. Abbreviations: iss = internal sac sclerites; op = orificial plates. Scale = 0.5 mm.



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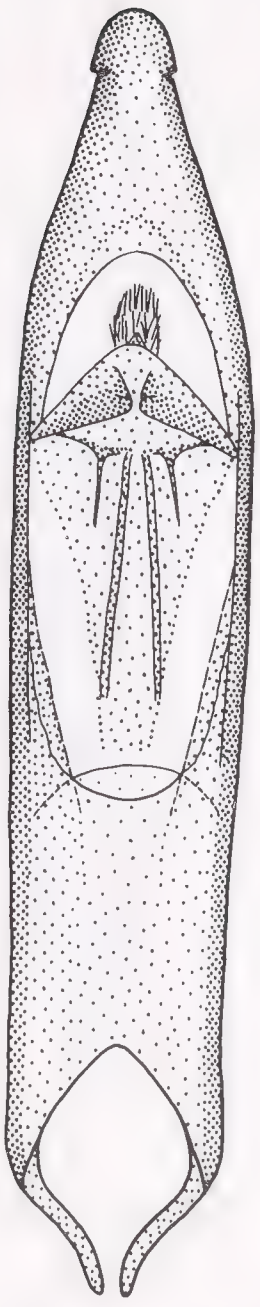

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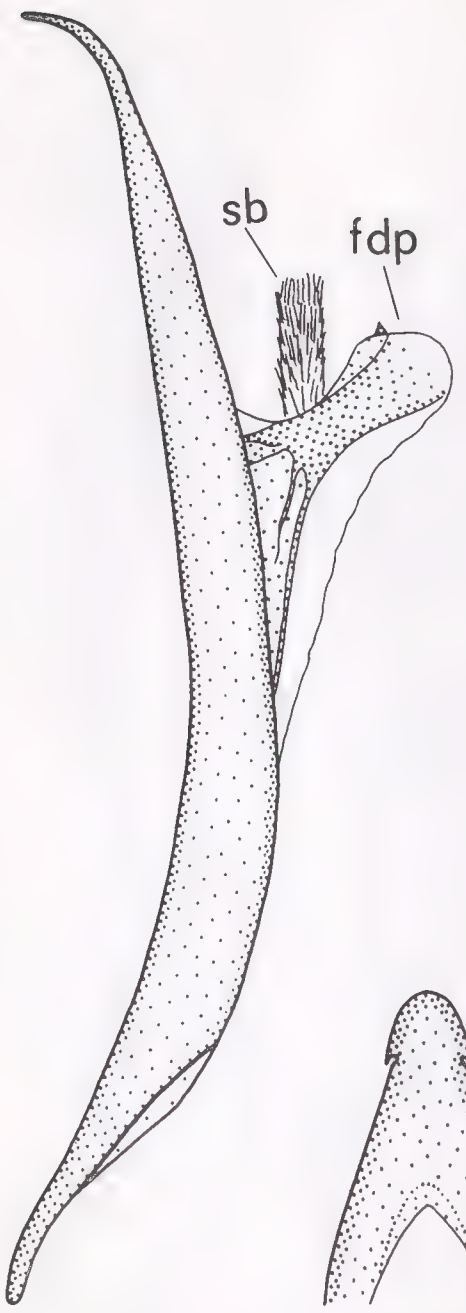

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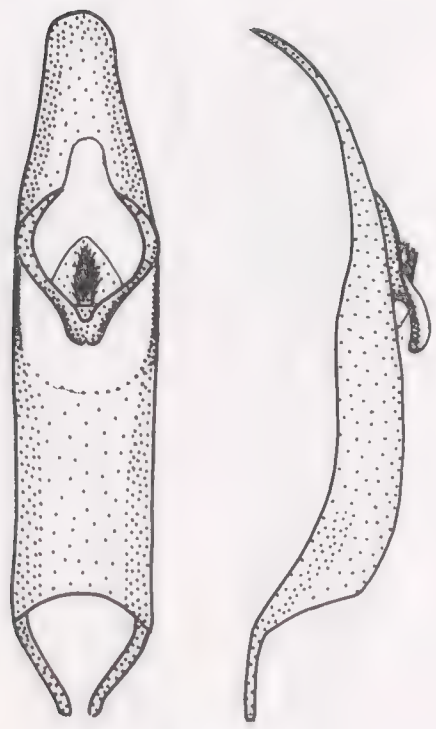

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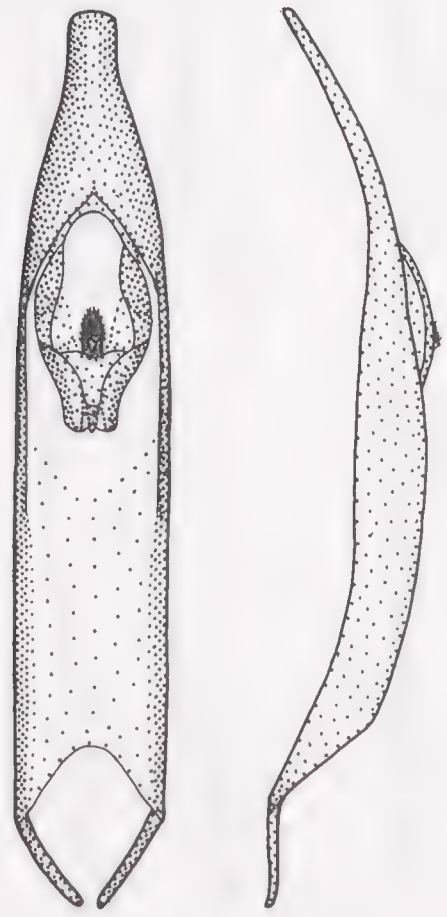

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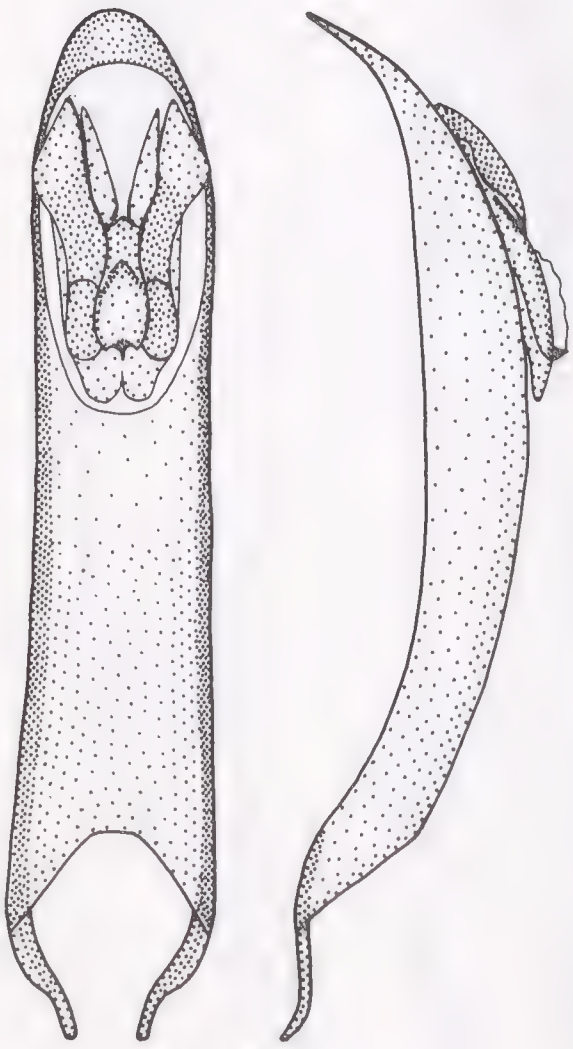
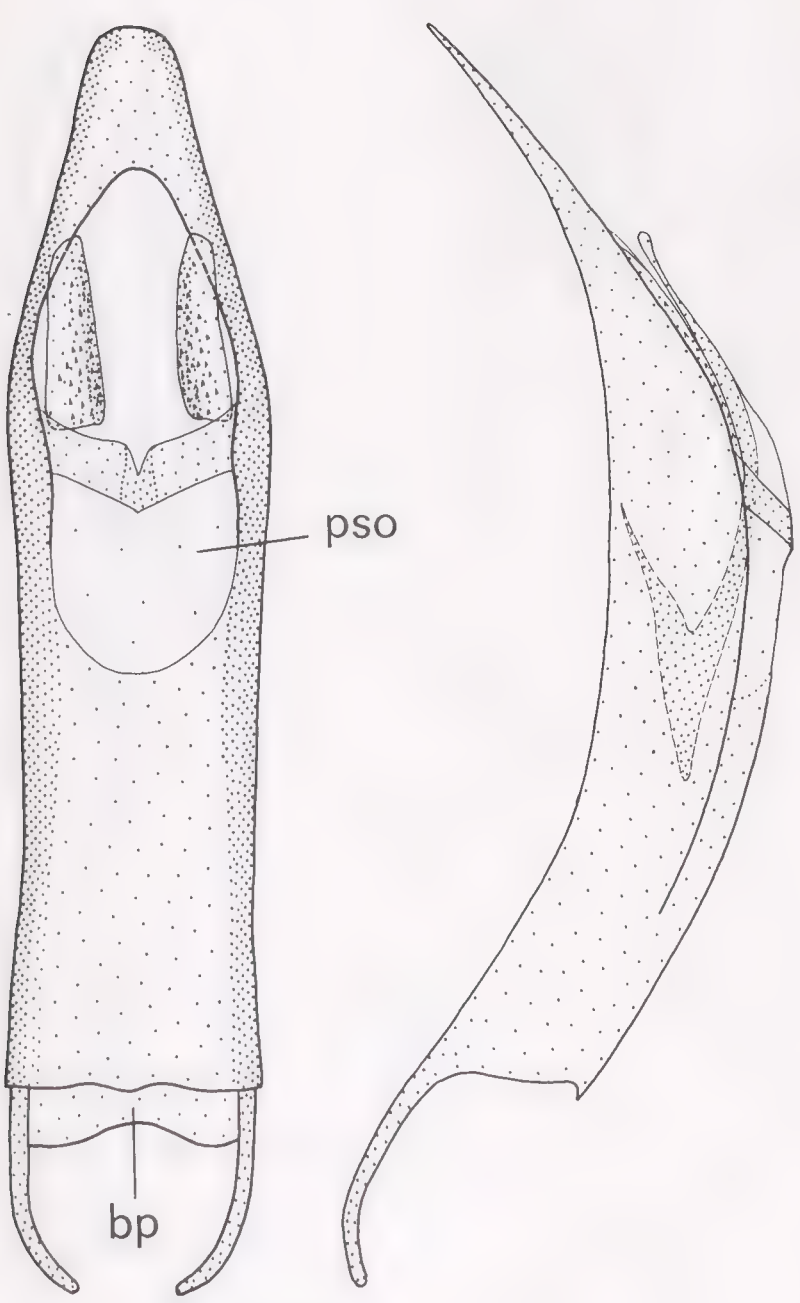


134

Figs. 129-134 - Median lobe in dorsal and lateral view of: 129. *Bagous dieckmanni*; 130. *B. geniculatus*; 131. *B. mucronatus*; 132. *B. perparvulus*; 133. *B. biimpressus*; 134. *B. petro*. Abbreviations: fdp = false orificial process; sb = setal brush. Scale = 0.5 mm.



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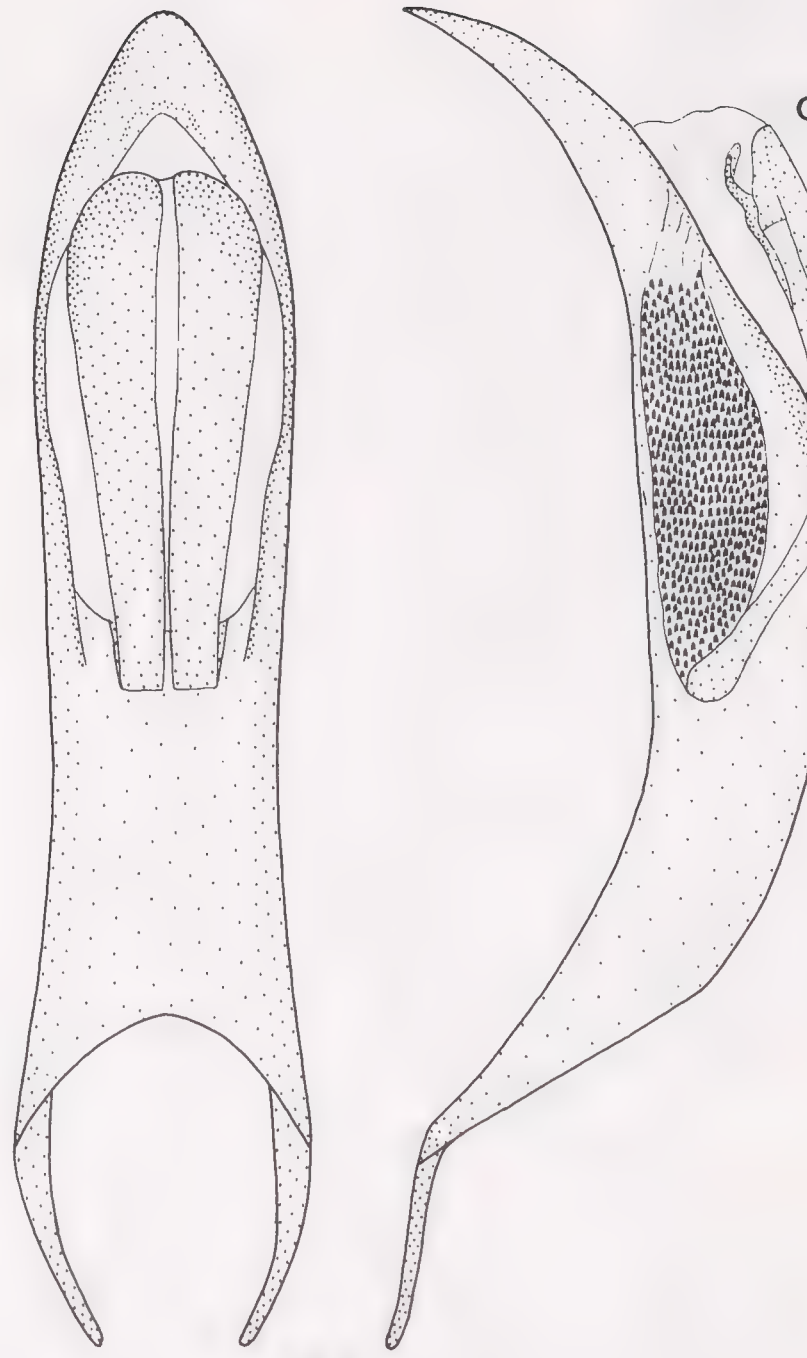

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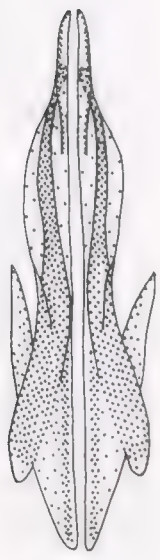
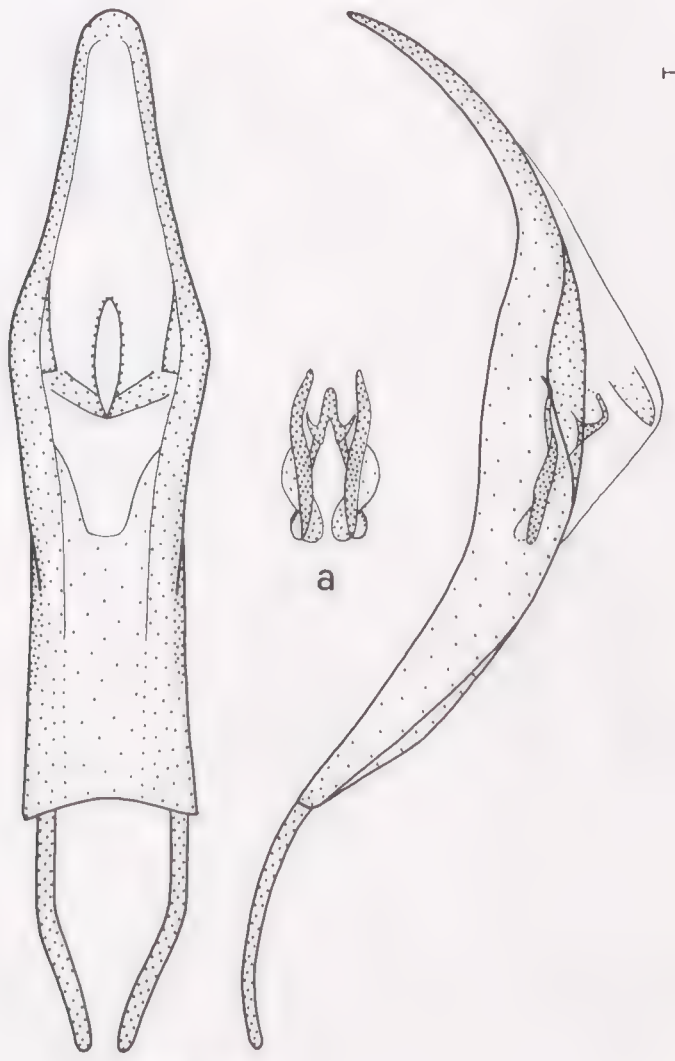


135 a



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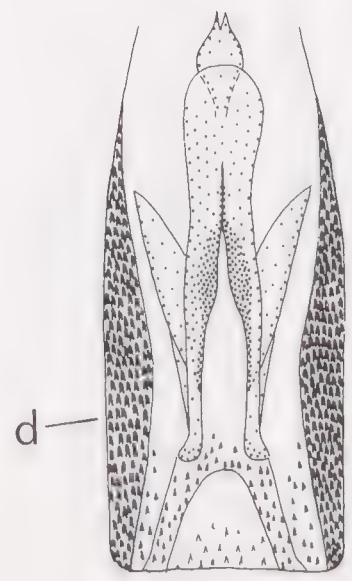
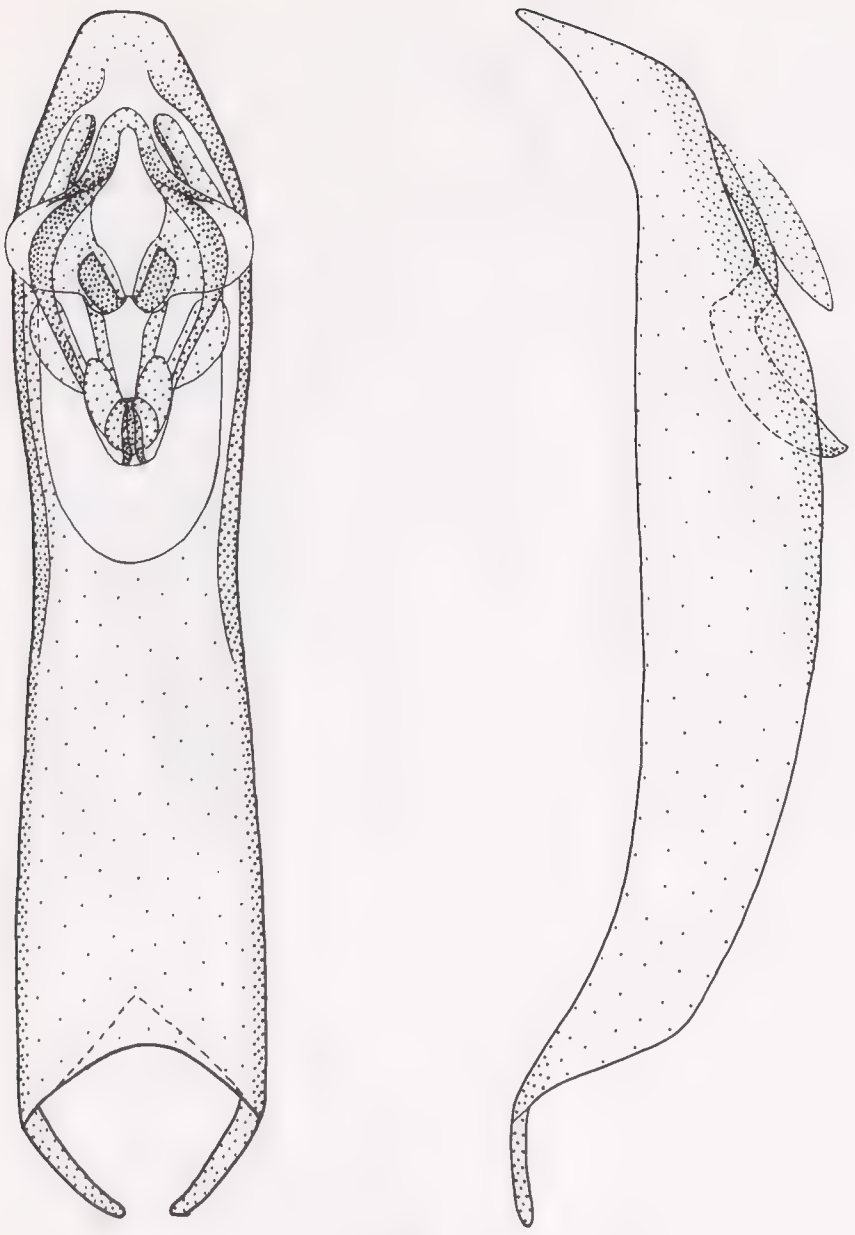


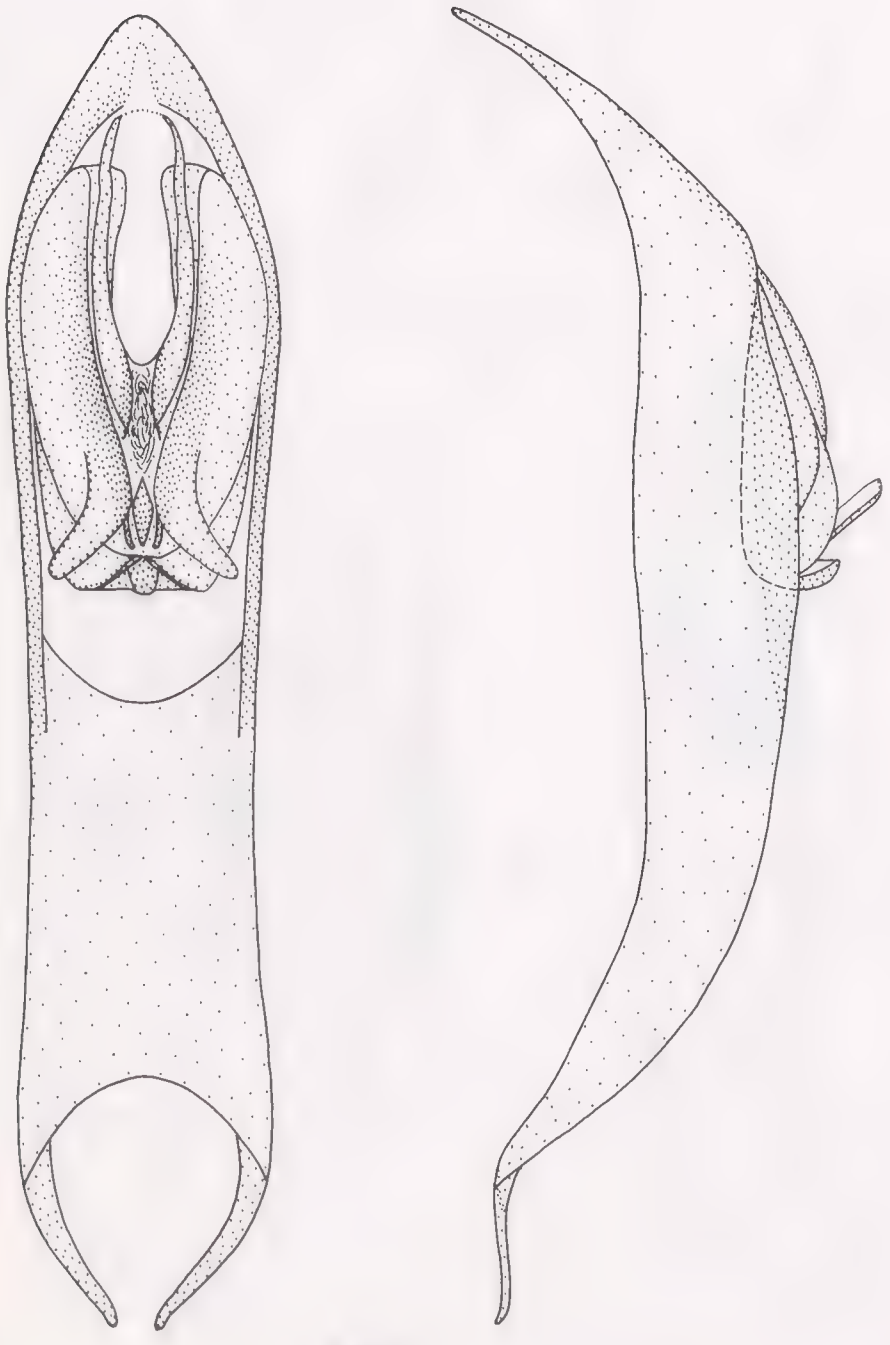
137 a

Figs. 135-137 - Median lobe in dorsal and lateral view and internal sac sclerites (a) of: 135. *Bagous argillaceus*; 136. *B. fremuthi*; 137. *B. lutosus*. Abbreviations: bp = basal plates; d = denticles; op = orificial plates; pso = pseudo-orifice. Scale = 0.5 mm.

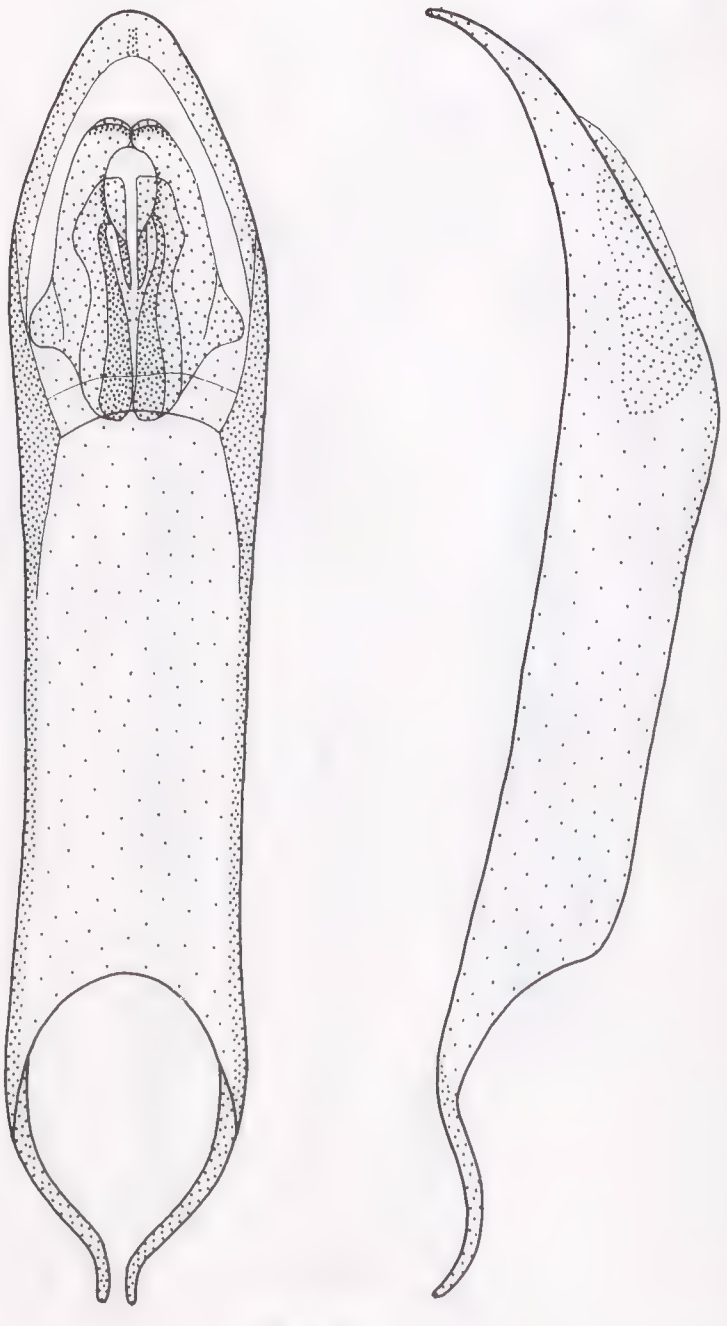


138

139

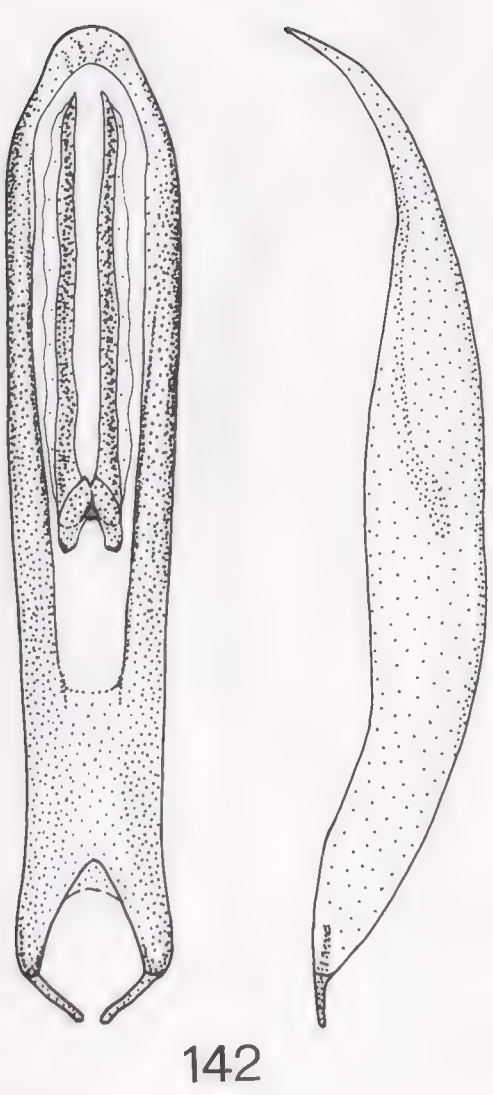


140



141

Figs. 138-141 - Median lobe in dorsal and lateral view of: 138. *Bagous sardiniensis*; 139. *B. bulgaricus*; 140. *B. peregrinus*; 141. *B. meregallii*. Scale = 0.5 mm.



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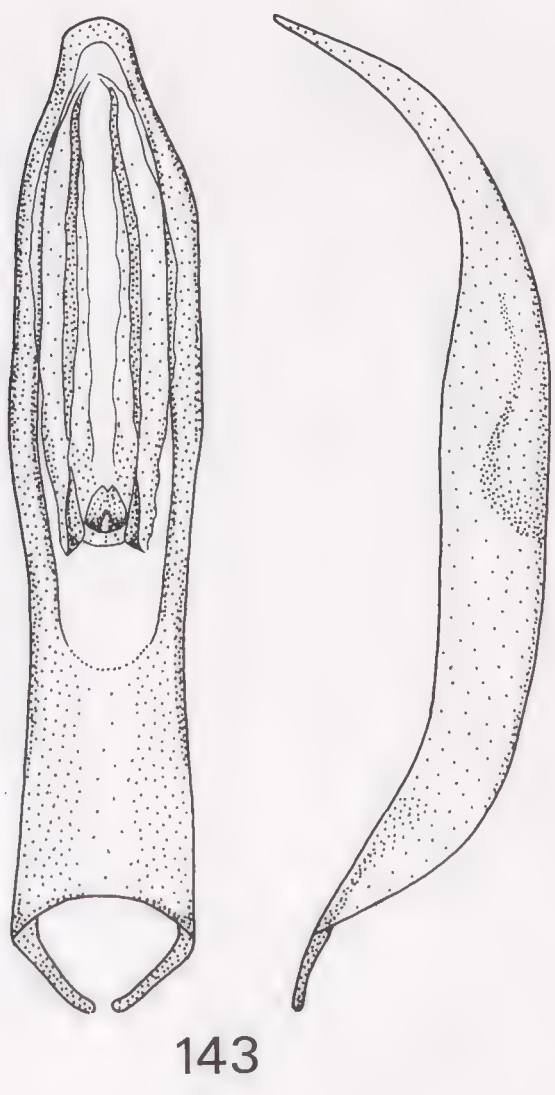

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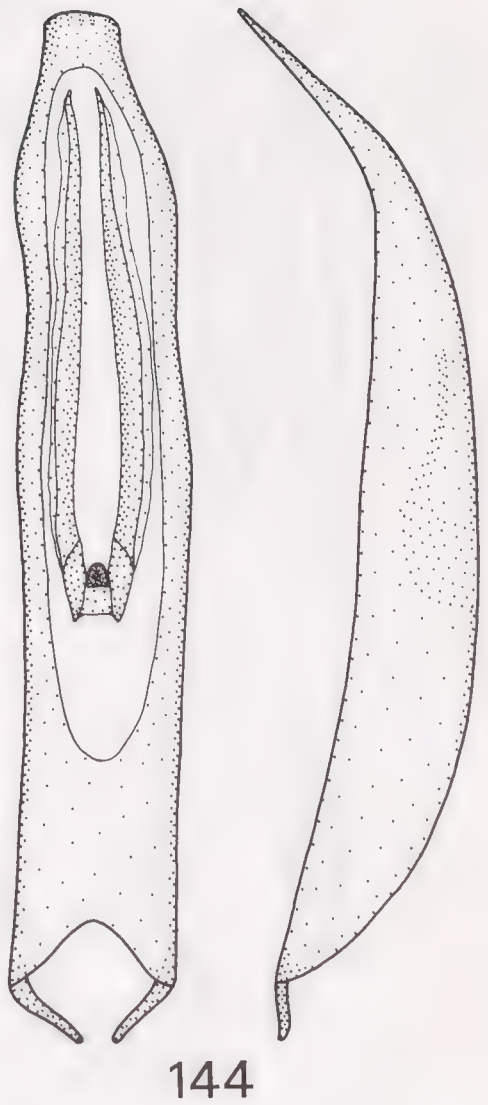

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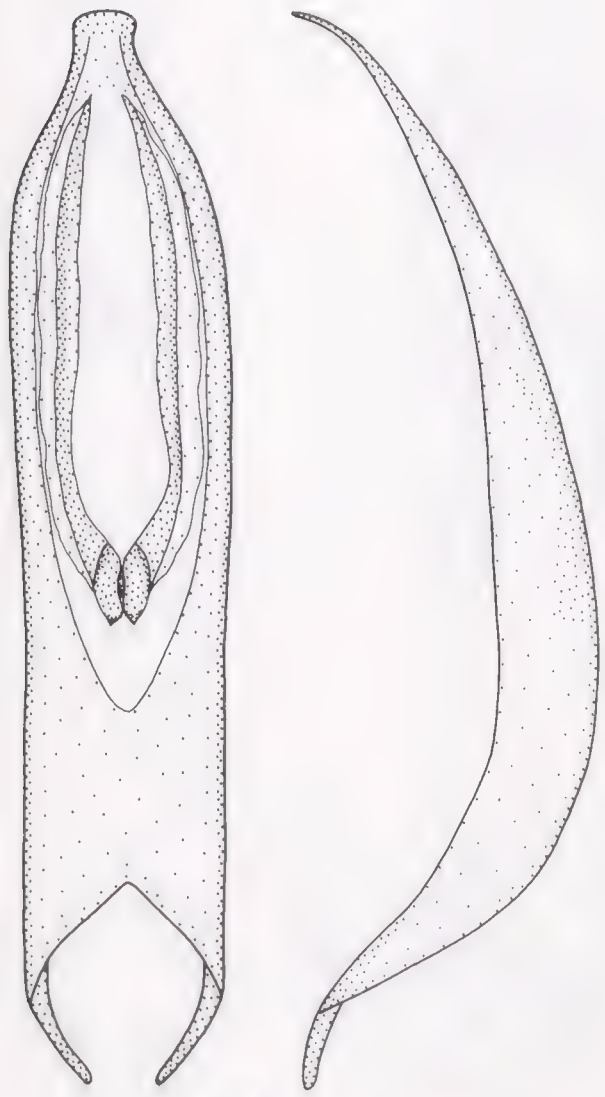

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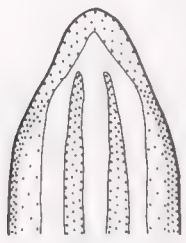
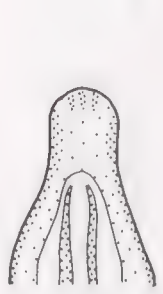
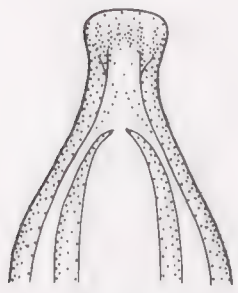


142a

143a



144a



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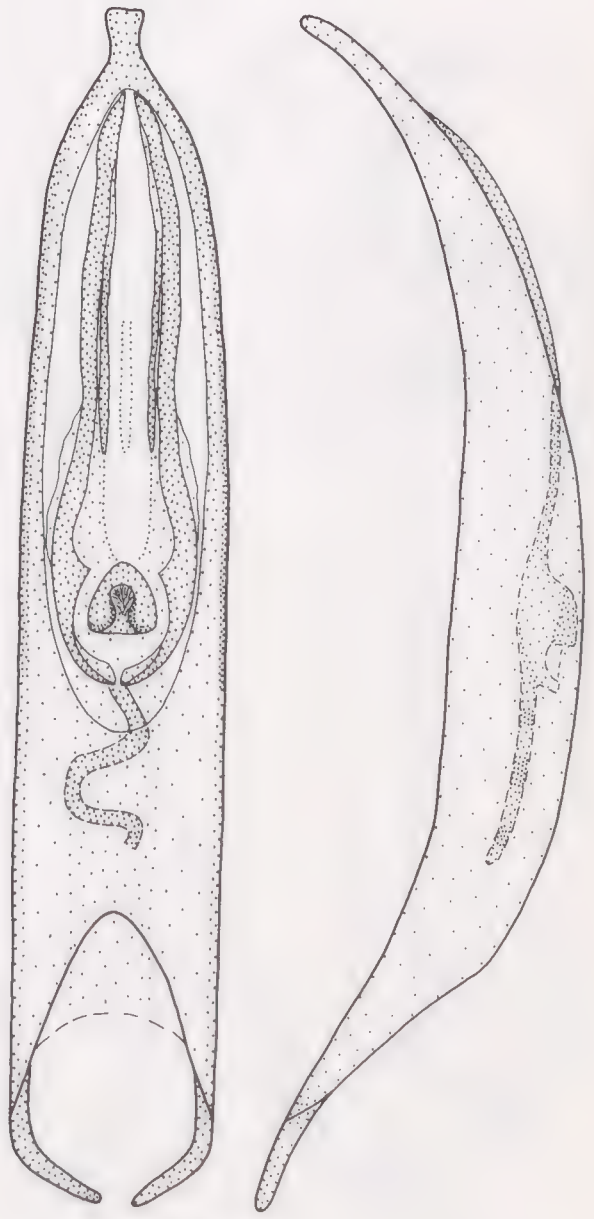
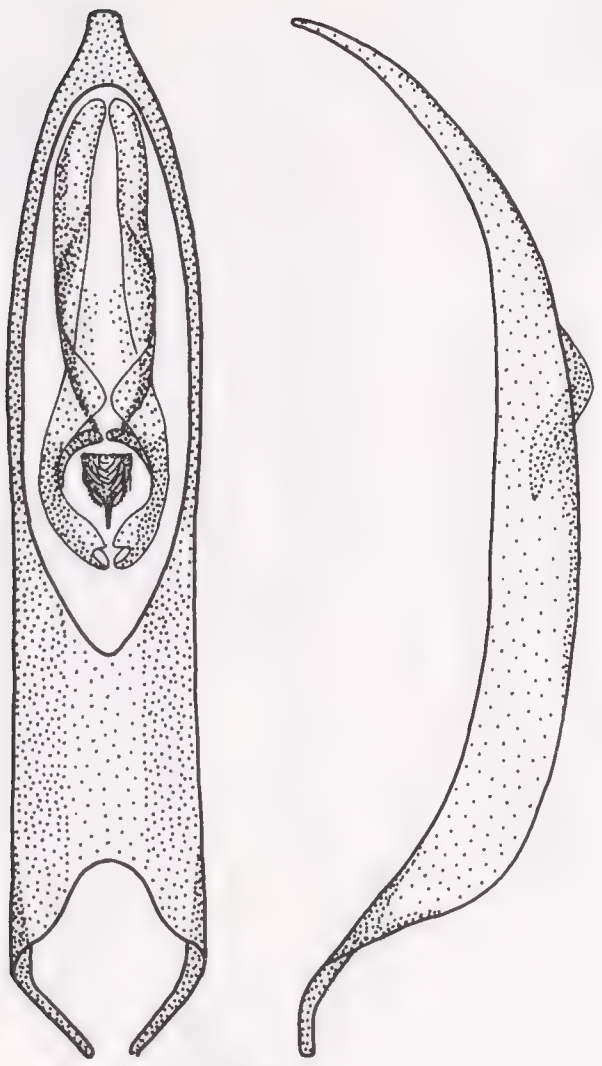


146

Figs. 142-146 - Median lobe in dorsal and lateral view and apex (a) of: 142. *Bagous leonhardi*; 143. *B. tubulus*; 144. *B. mingrelicus*; 145. *B. henoni*; 146 *B. frivaldszkyi*. Scale = 0.5 mm.



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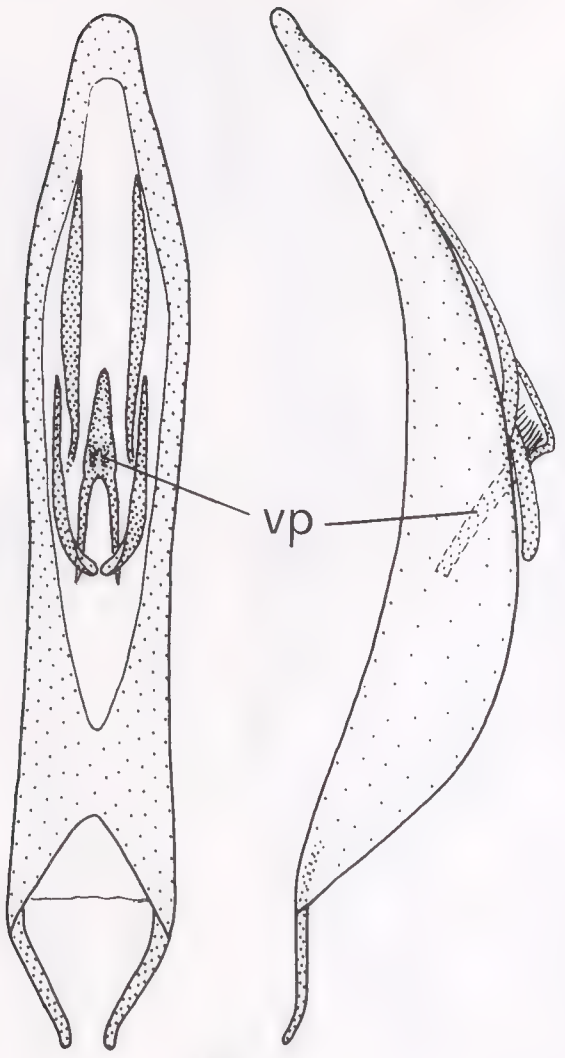

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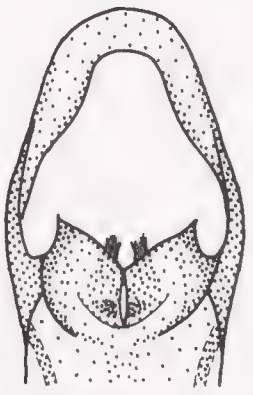

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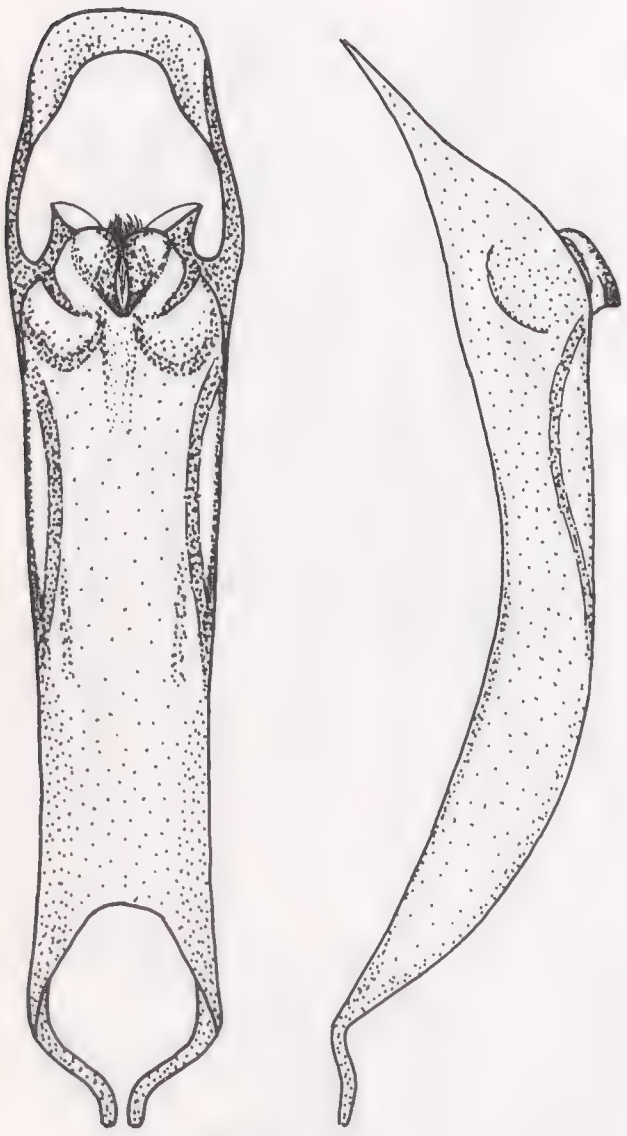

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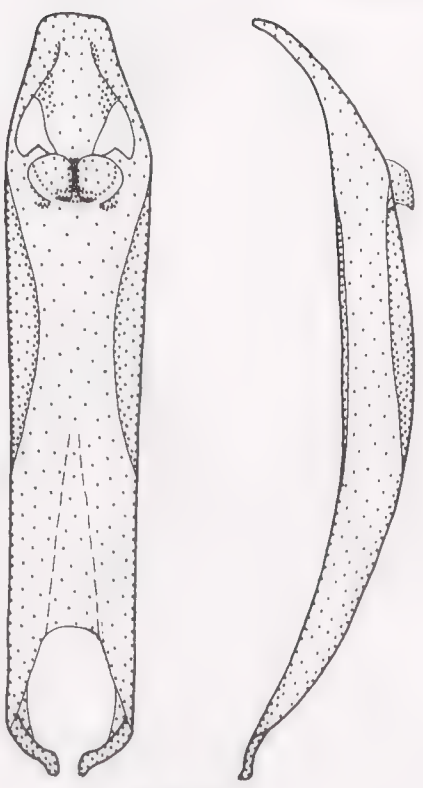

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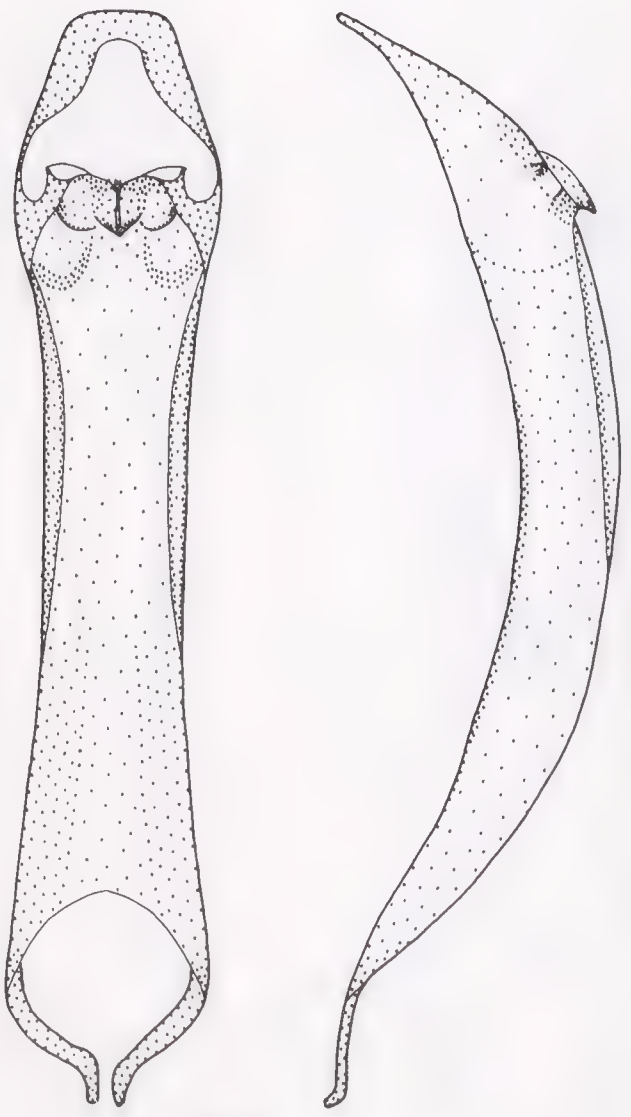


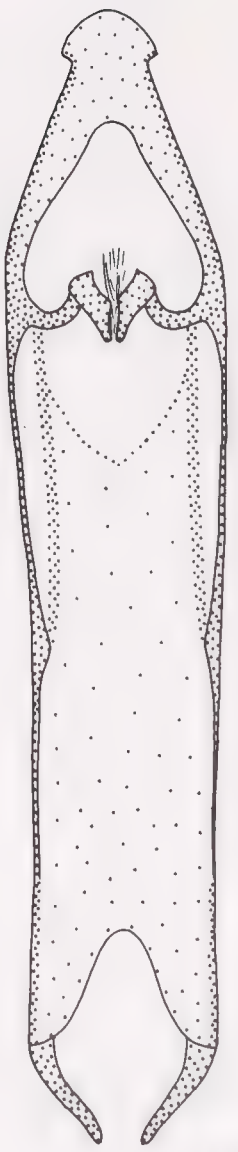
152

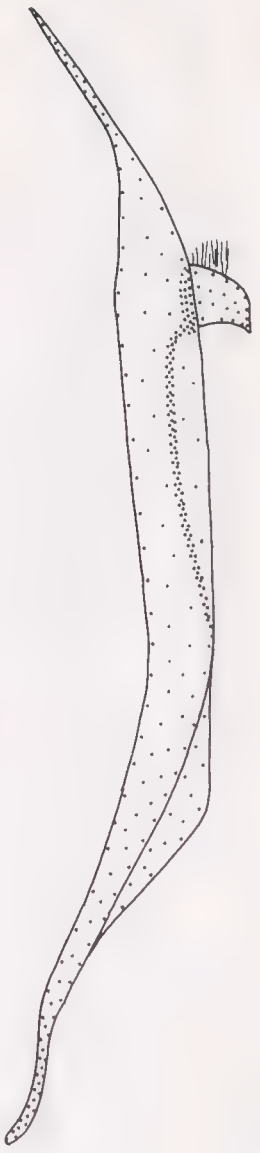
Figs. 147-152 - Median lobe in dorsal and lateral view of: 147. *Bagous majzlani*; 148. *B. cylindricus*; 149. *B. lutulosus*; 150. *B. brevis*; 151. *B. lothari*; 152. *B. revelieri*. Abbreviations: vp = ventral process. Scale = 0.5 mm (in fig. 147 = 0.25 mm).

153

154

155

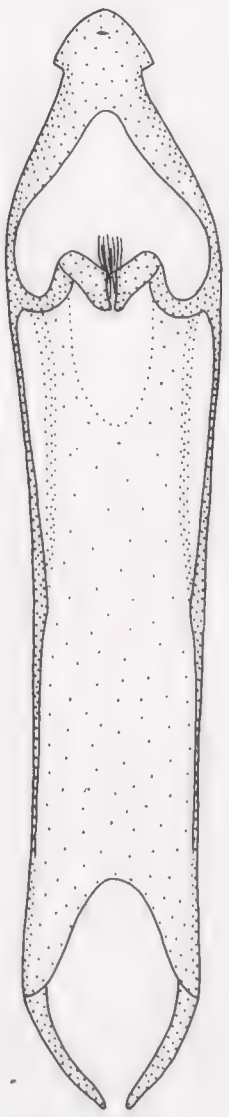




156

157

158



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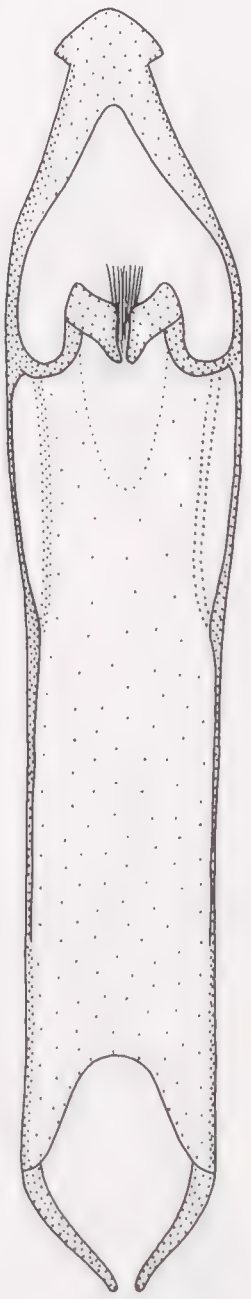

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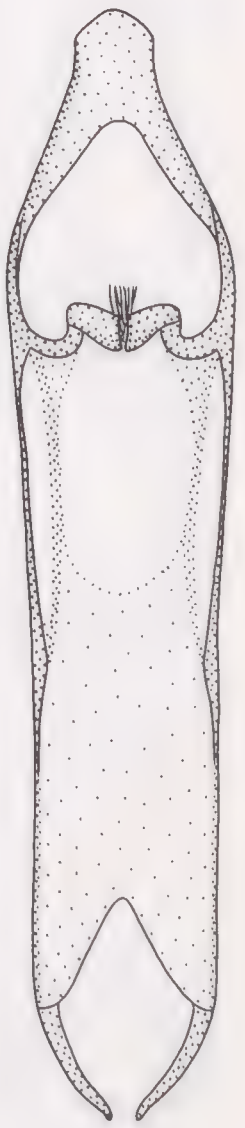
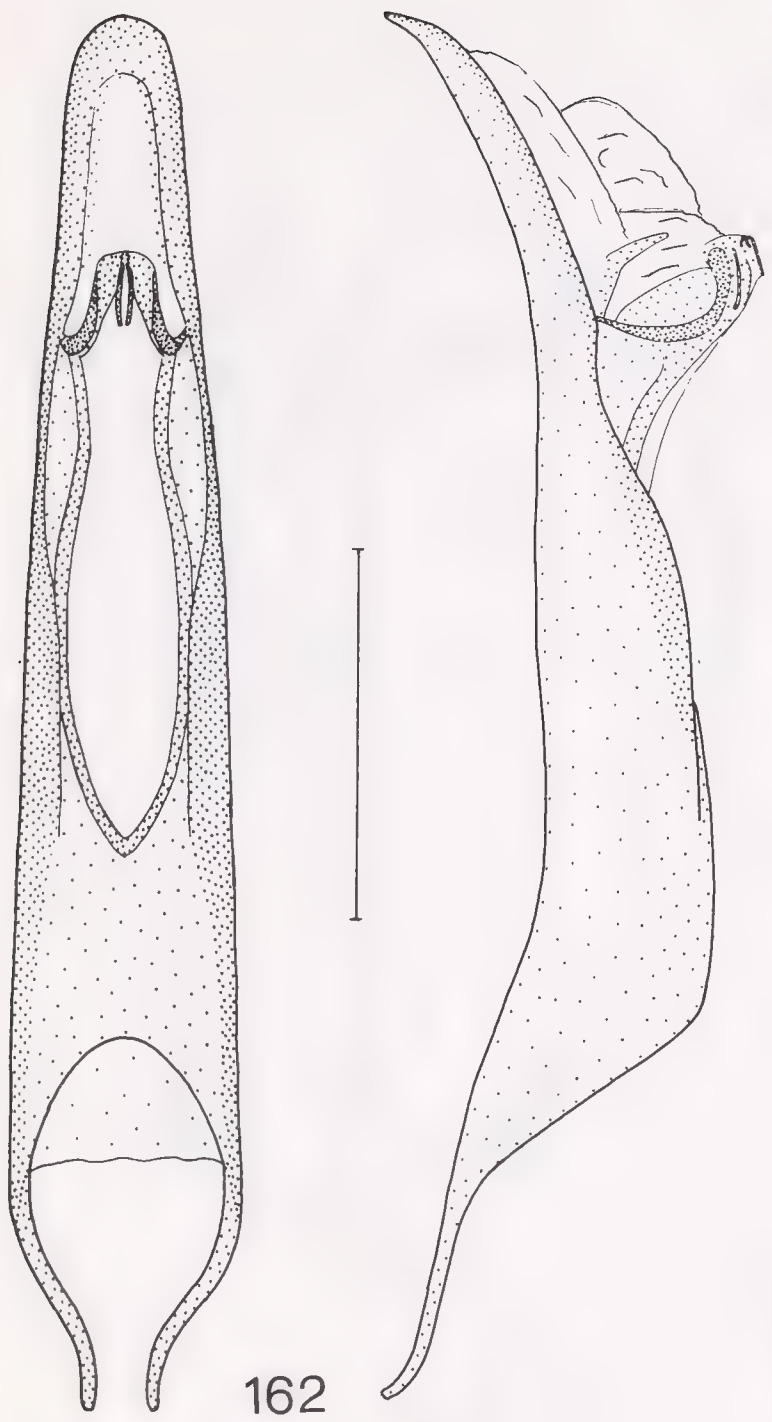


161

Figs. 153-161 - Median lobe in dorsal and lateral view of: 153. *Bagous riedeli*; 154. *B. lyali*; 155. *B. rotundicollis*; 156. *B. diglyptus*; 157. *B. rufimanus*; 158. *B. vivesi*; 159. *B. collignensis*; 160. *B. claudicans*; 161. *B. longitarsis*. Scale = 0.5 mm.



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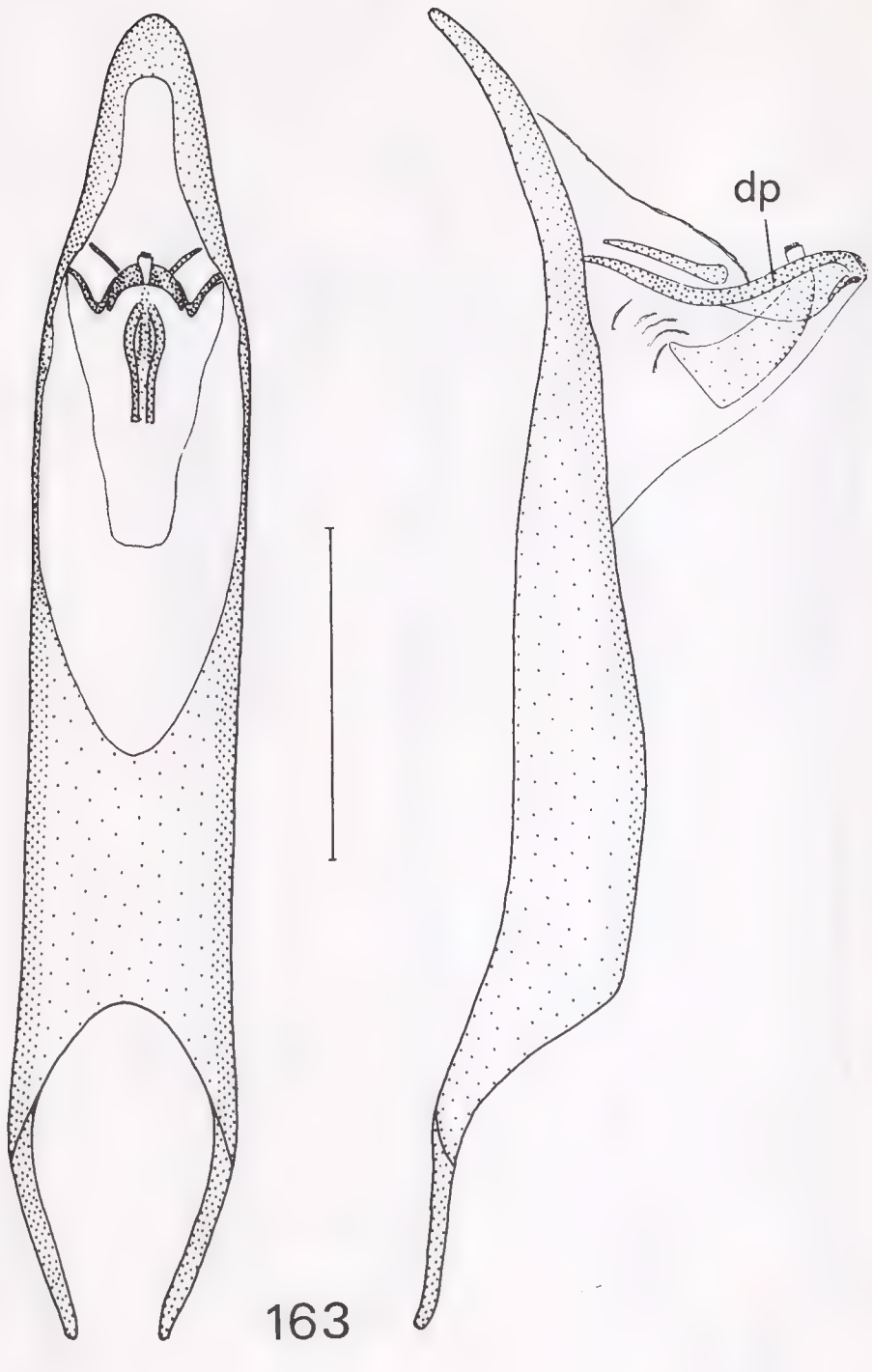

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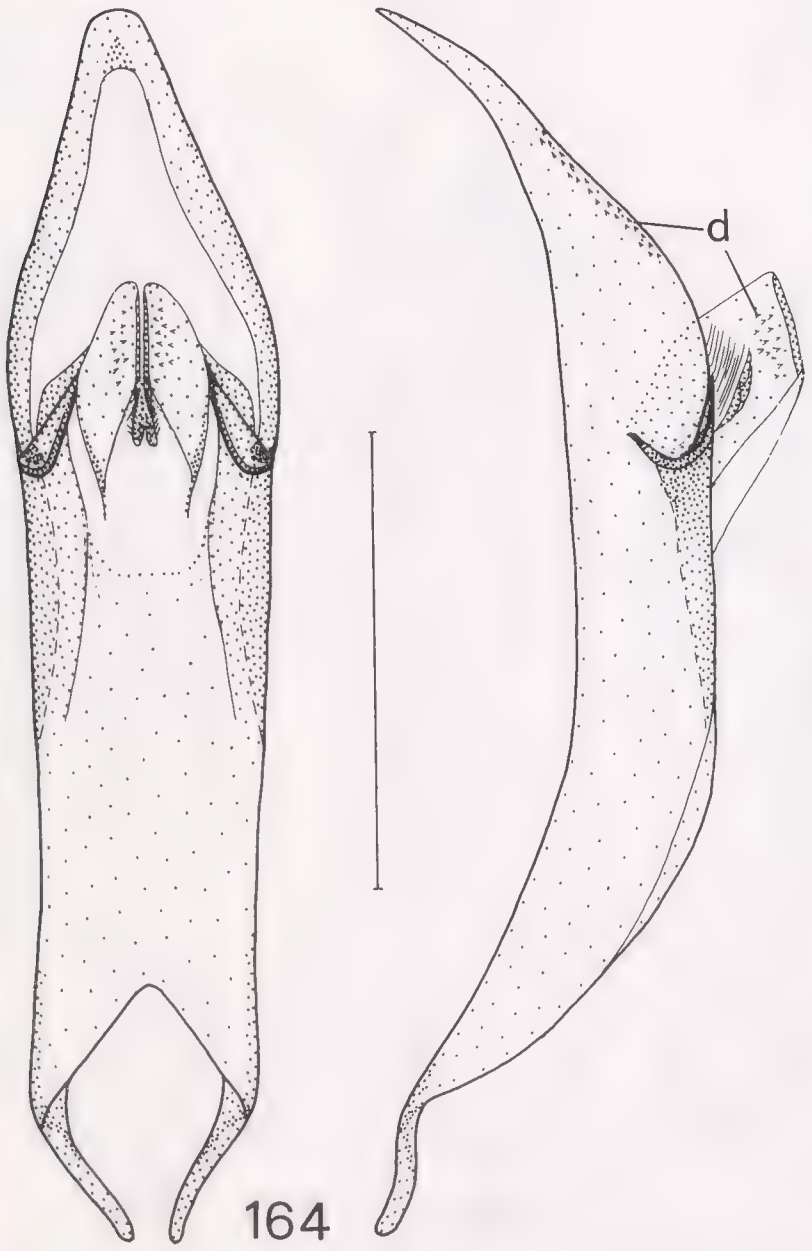

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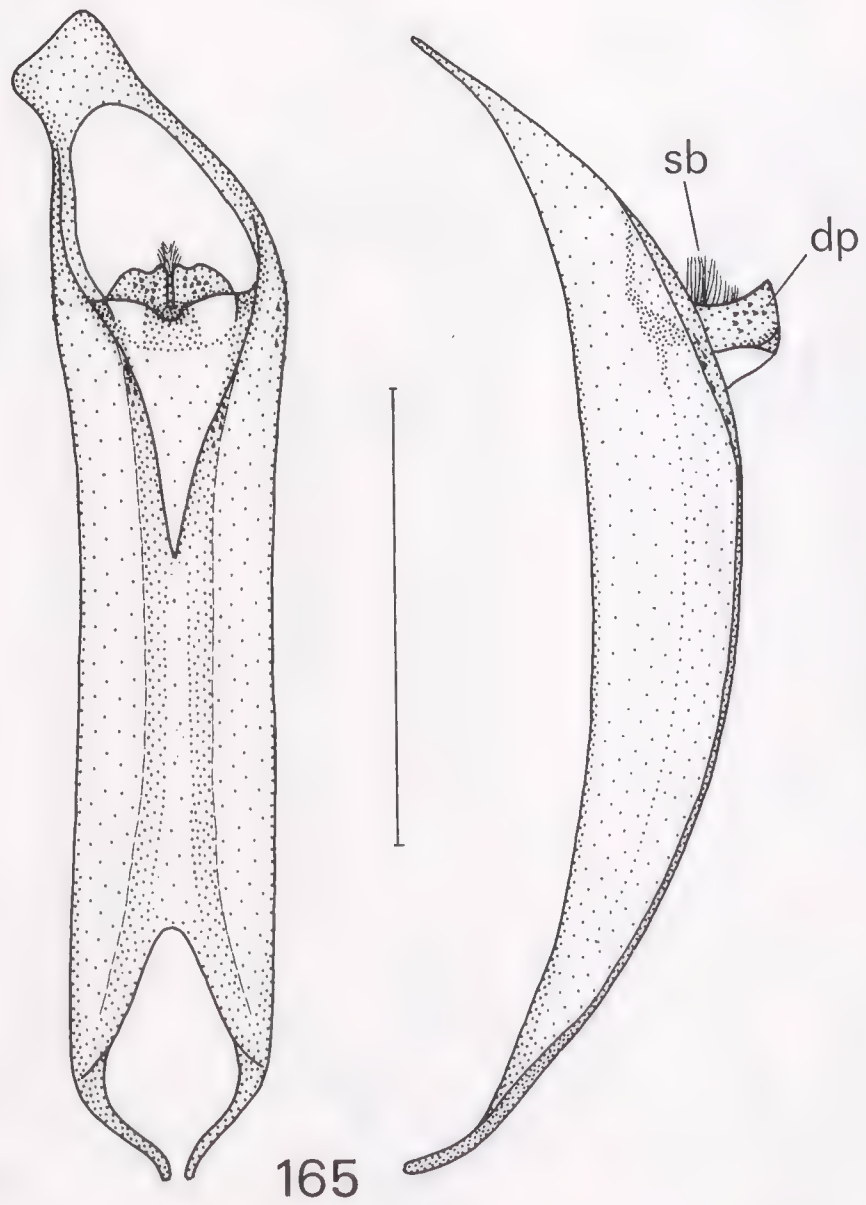
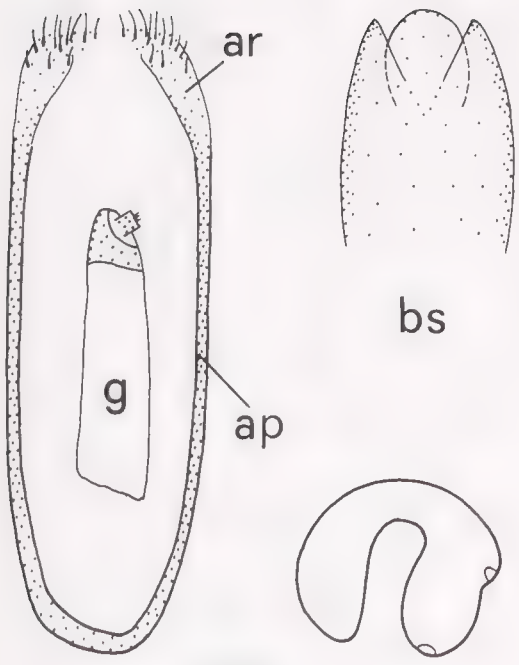


165

Figs. 162-165 - Median lobe in dorsal and lateral view of: 162. *Bagous nodulosus*; 163. *B. validus*; 164. *B. limosus*; 165. *B. frit*. Abbreviations: d = denticles; dp = dorsal process; sb = setal brush. Scale = 0.5 mm.



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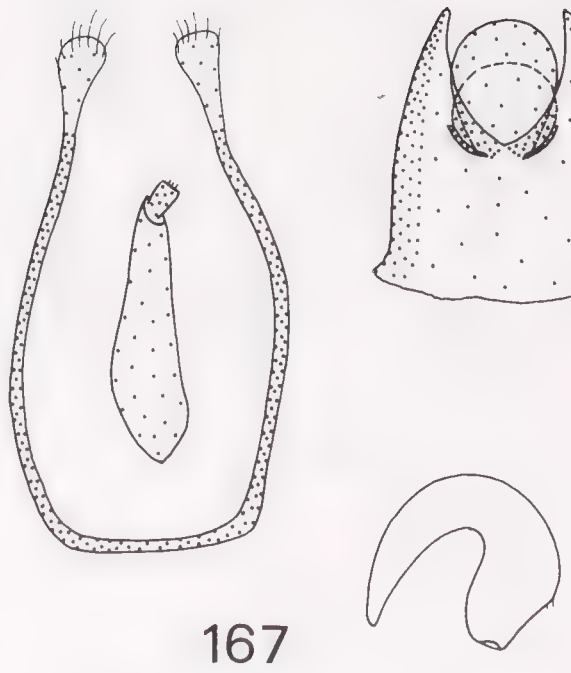

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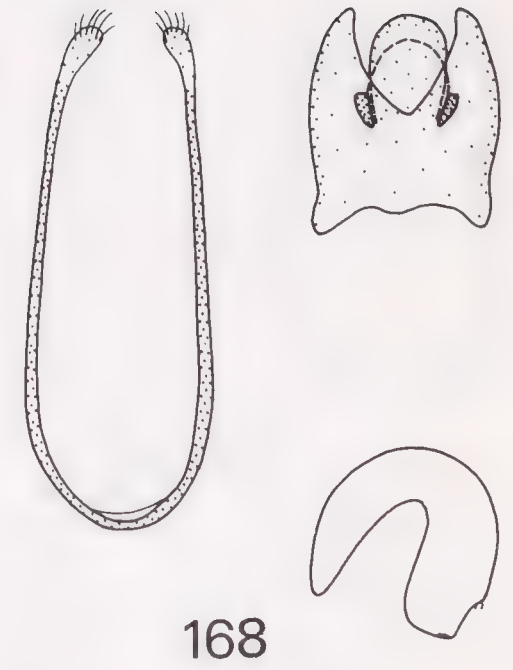

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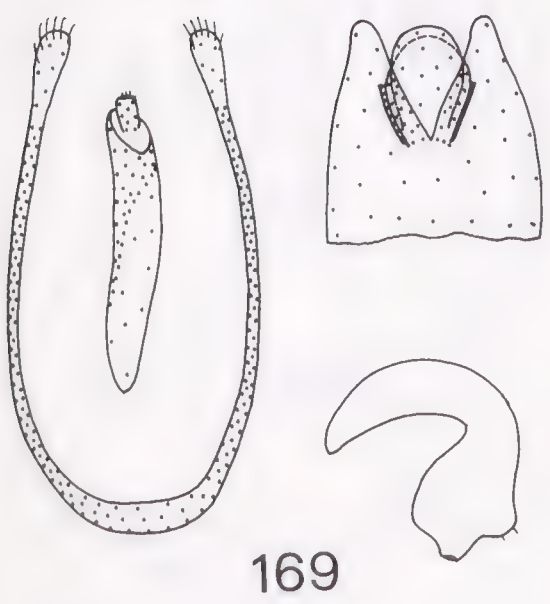

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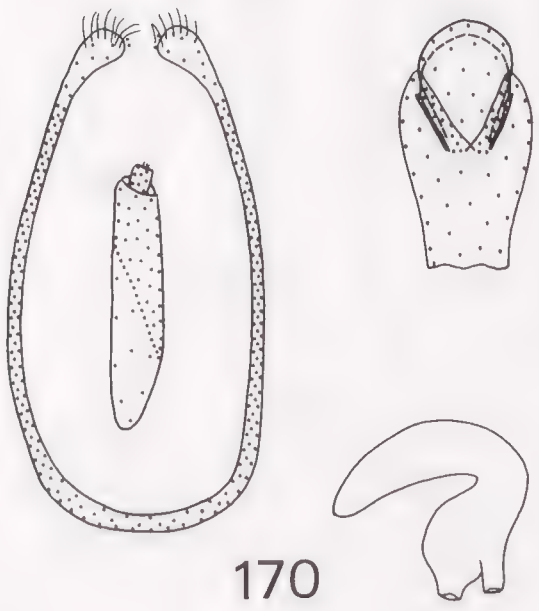

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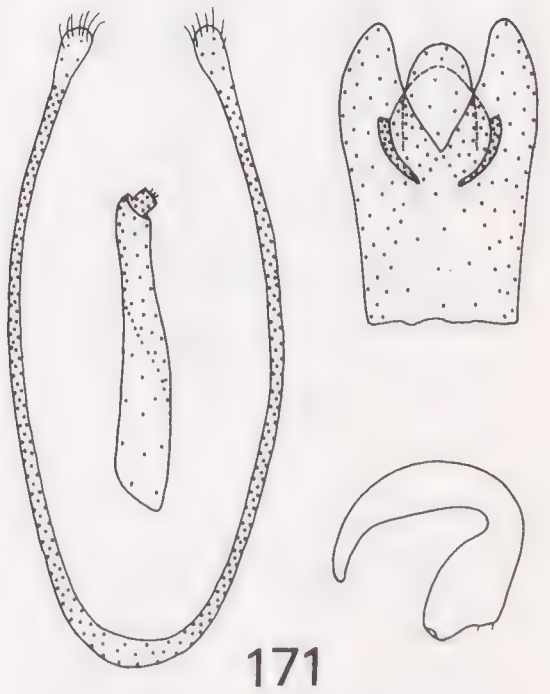

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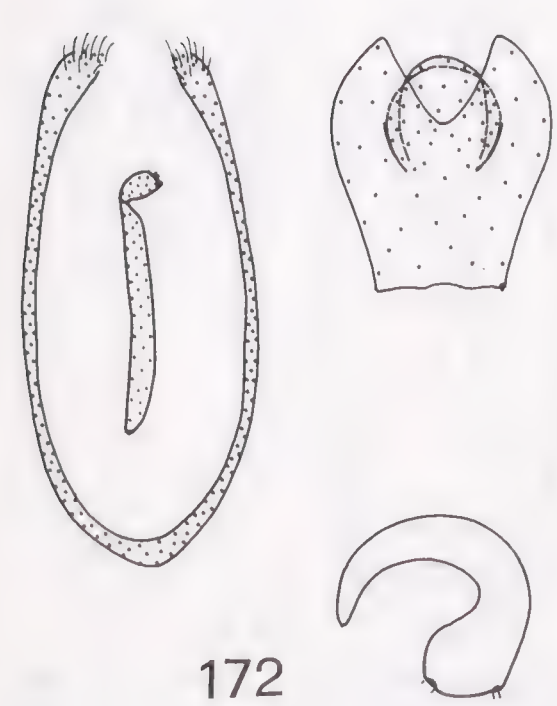

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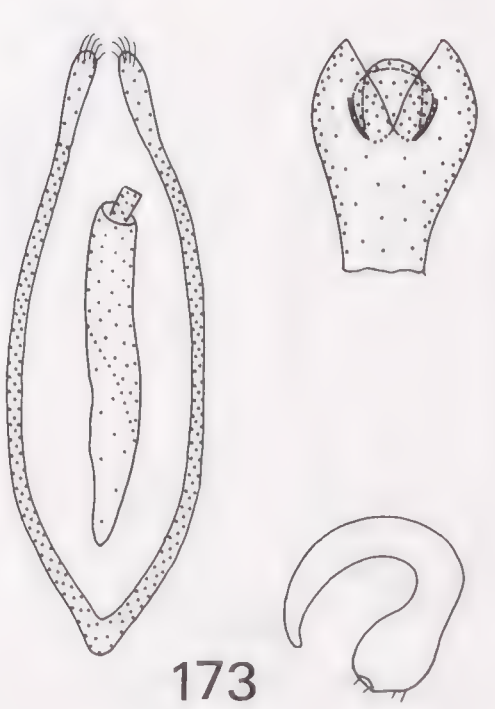

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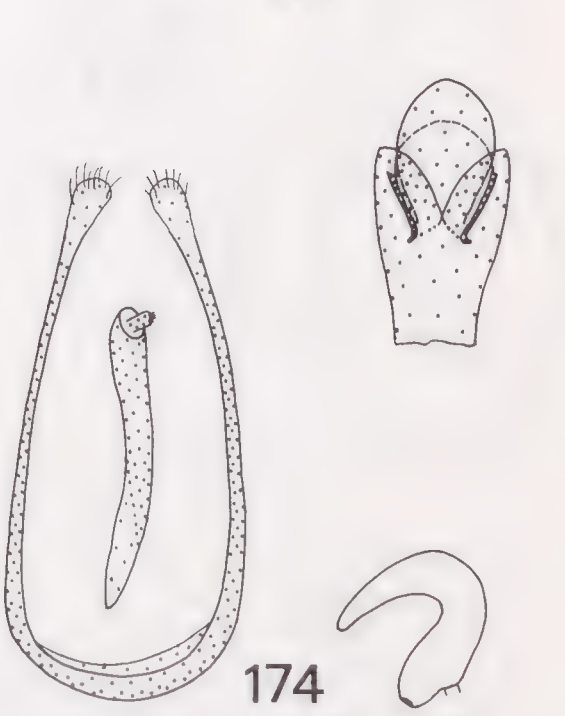
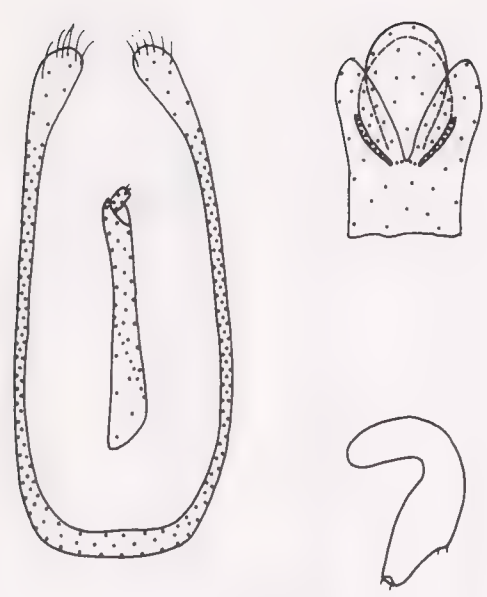


174

Figs. 166-174 - Female sternum VIII, gonocoxa, bursa copulatrix sclerites and spermatheca of: 166. *Bagous cyperorum*; 167. *B. epirotes*; 168. *B. anatolicus* (lacking gonocoxa); 169. *B. osellai*; 170. *B. gracilentus*; 171. *B. rudicollis*; 172. *B. corsicanus*; 173. *B. lyauteyi*; 174. *B. franzi*. Abbreviations: ap = apodeme; ar = arm; bs = bursal sclerites; g = gonocoxa. Scale = 0.5 mm.



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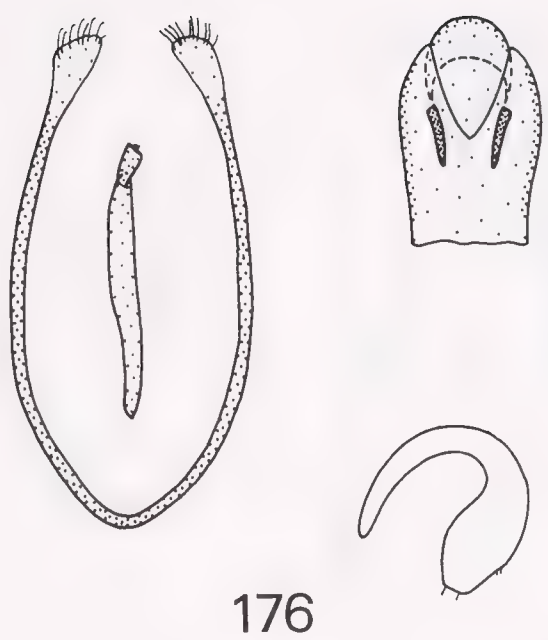

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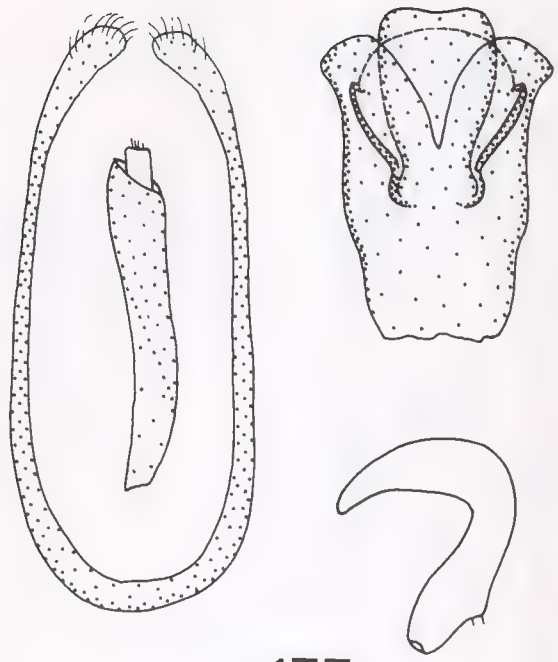

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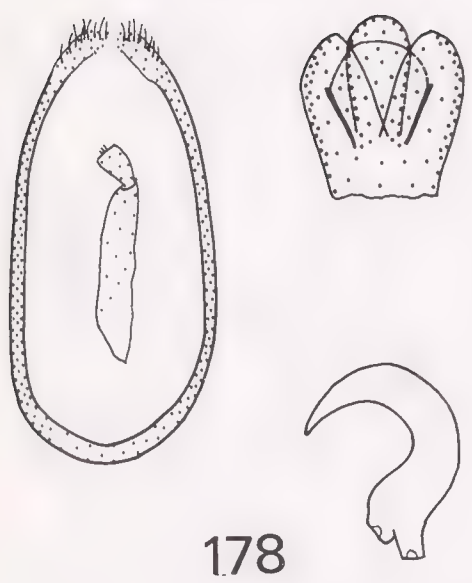

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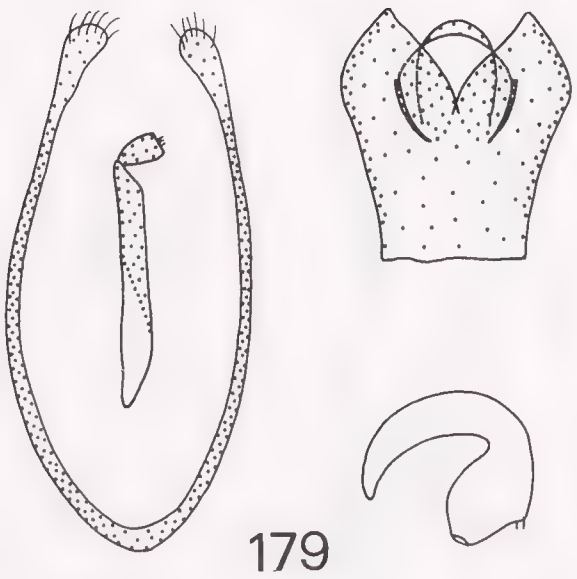

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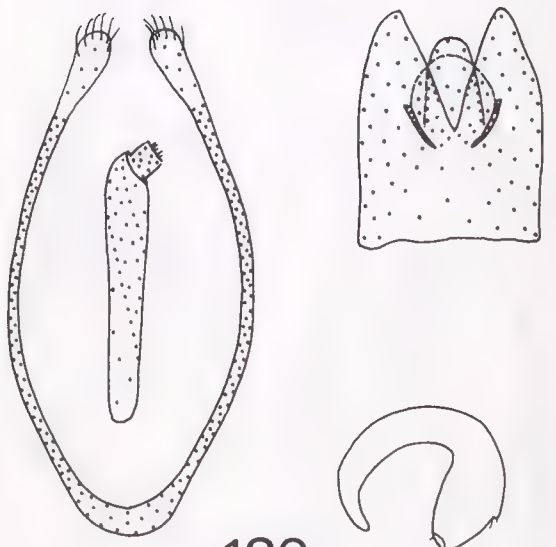

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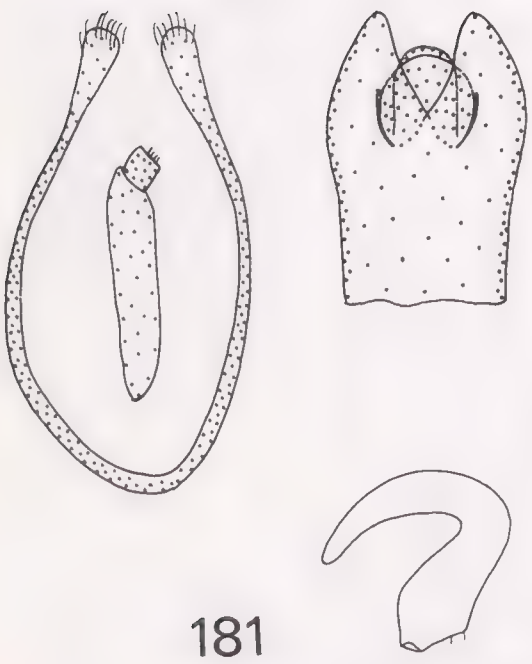

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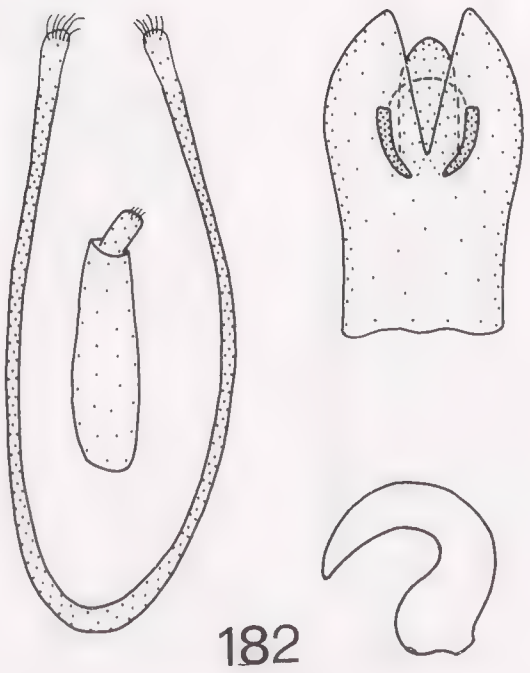

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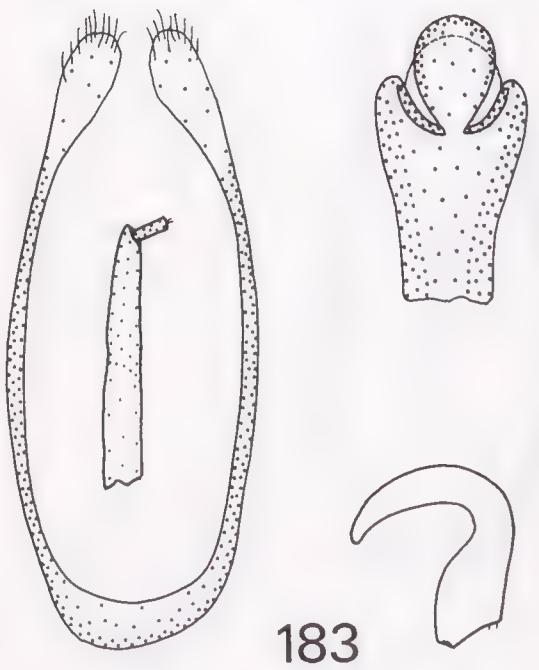
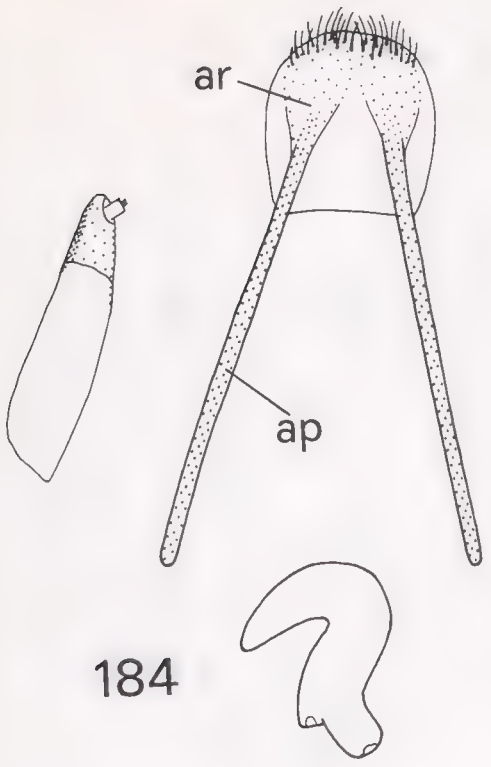


183

Figs. 175-183 - Female sternum VIII, gonocoxa, bursa copulatrix sclerites and spermatheca of: 175. *Bagous freti*; 176. *B. cosiensis*; 177. *B. andalusiacus*; 178. *B. longirostris*; 179. *B. guttatus*; 180. *B. marocanus*; 181. *B. chevrolati*; 182. *B. ibericus*; 183. *B. costulatus*. Scale = 0.5 mm.



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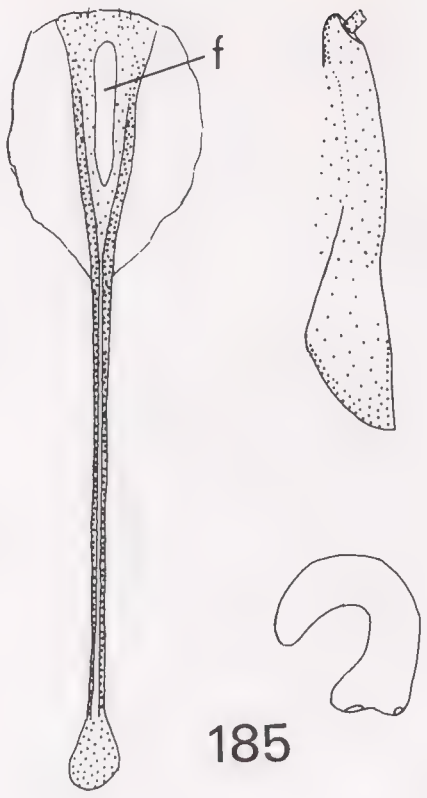

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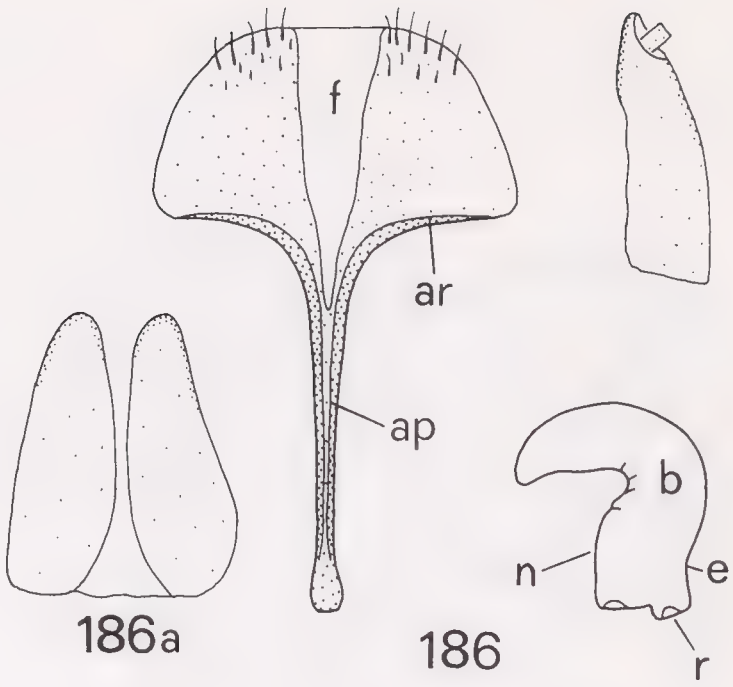

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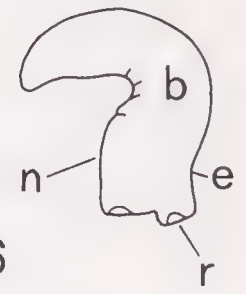

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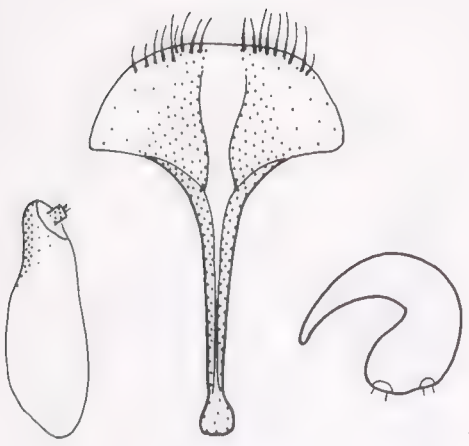

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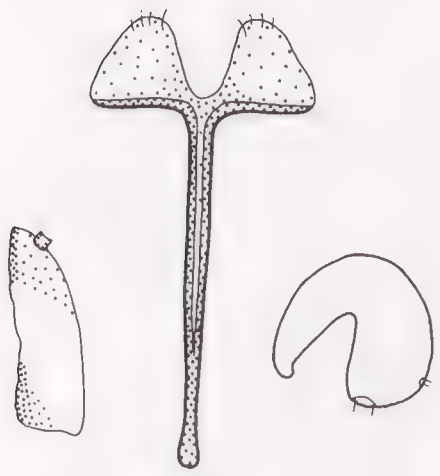

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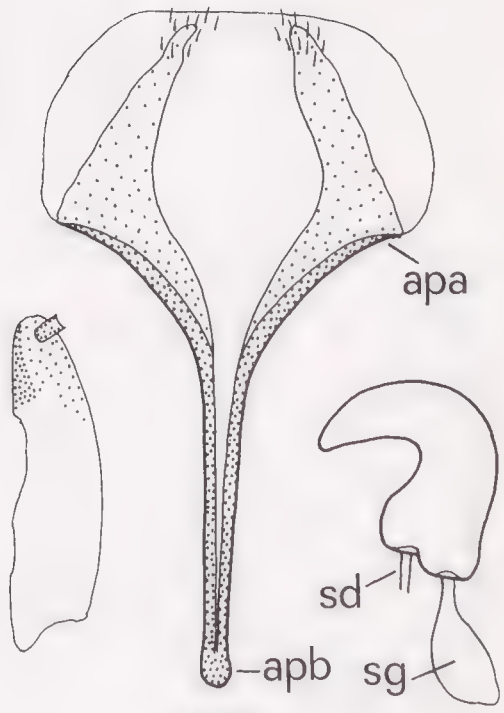

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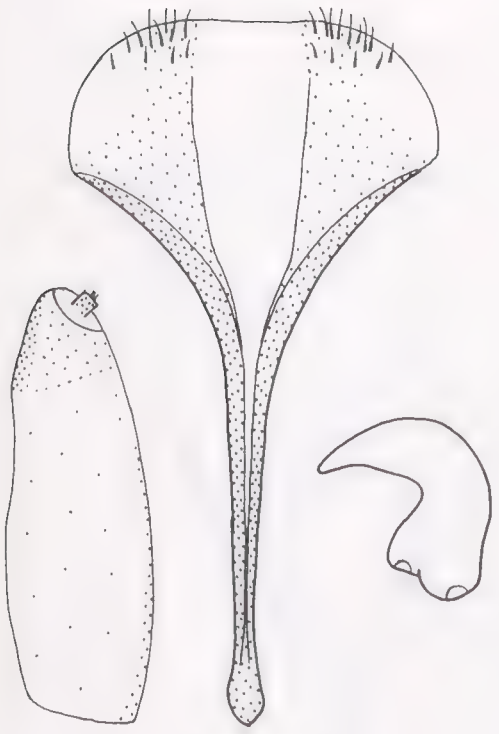

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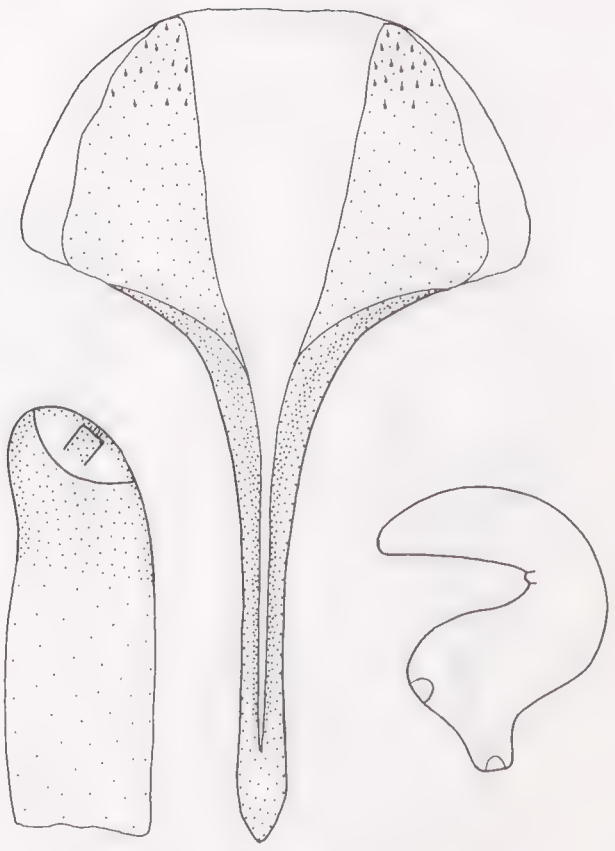

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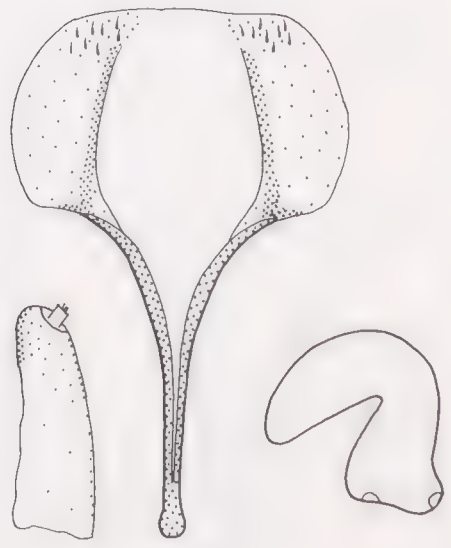
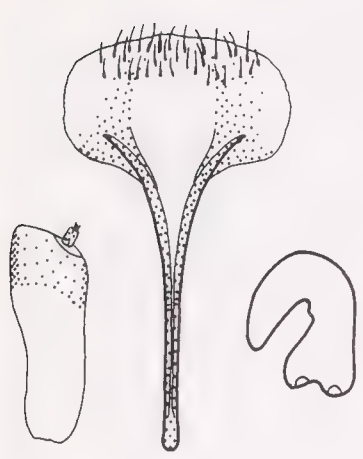


192

Figs. 184-192 - Female sternum VIII, gonocoxa, bursa copulatrix sclerites and spermatheca of: 184. *Bagous brevipennis*; 185. *B. alismatis*; 186. *B. puncticollis*; 187. *B. glabrirostris*; 188. *B. bagdatensis*; 189. *B. lutulentus*; 190. *B. robustus*; 191. *B. subcarinatus*; 192. *B. binodulus*. Abbreviations: ap = apodeme; apa = apex of apodeme; apb = base of apodeme; ar = arm; b = body; e = emargination between body and ramus; f = fenestra; n = nodus; r = ramus; sd = spermathecal duct; sg = spermathcal gland. Scale = 0.5 mm.



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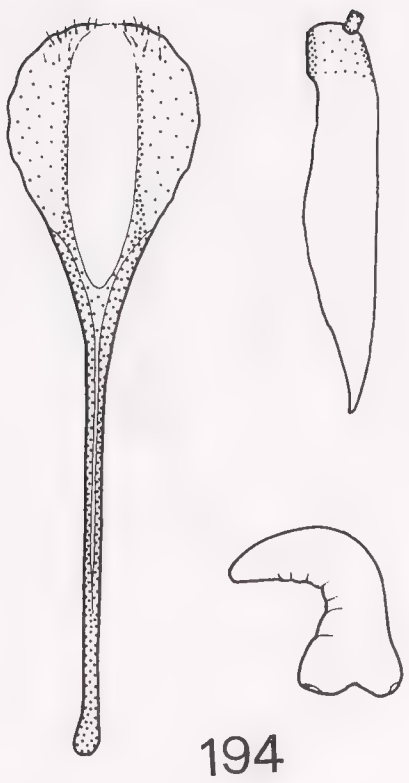

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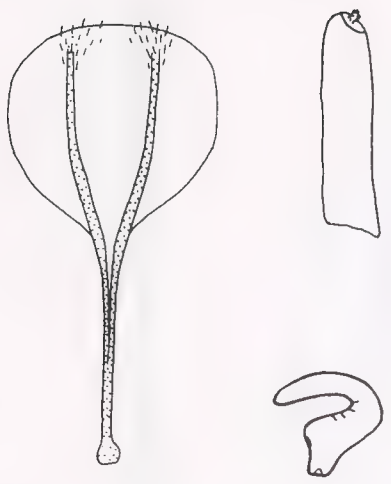

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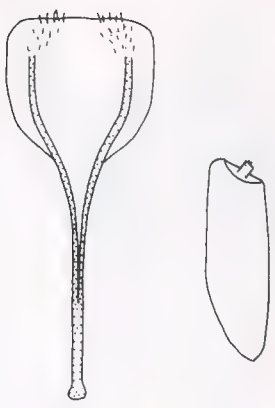

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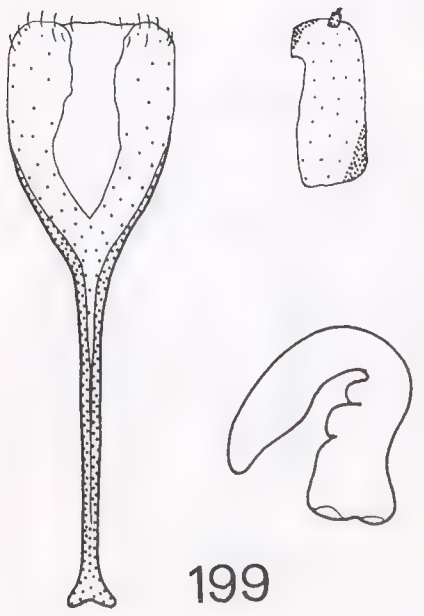

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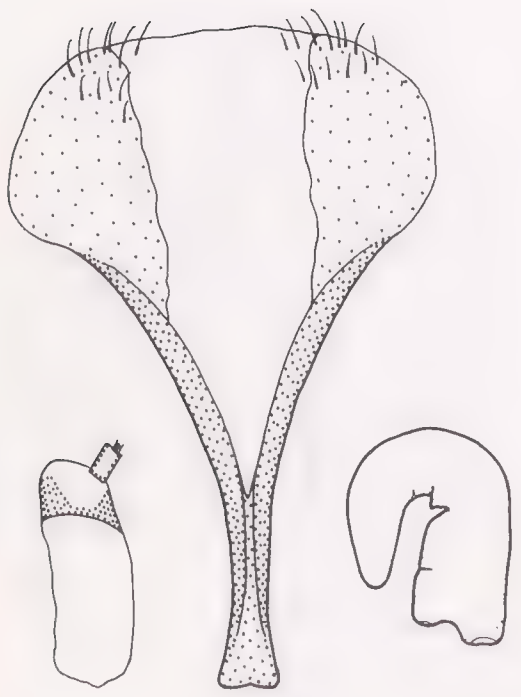
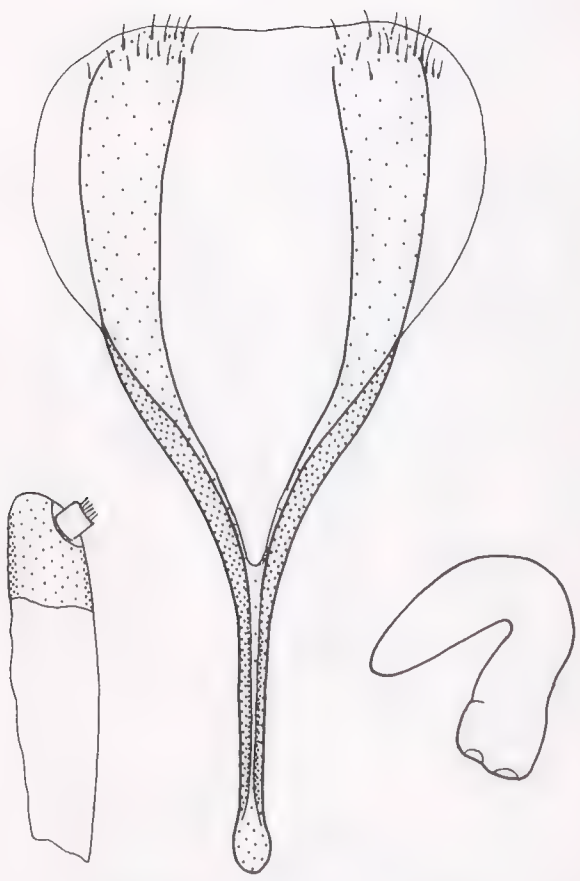


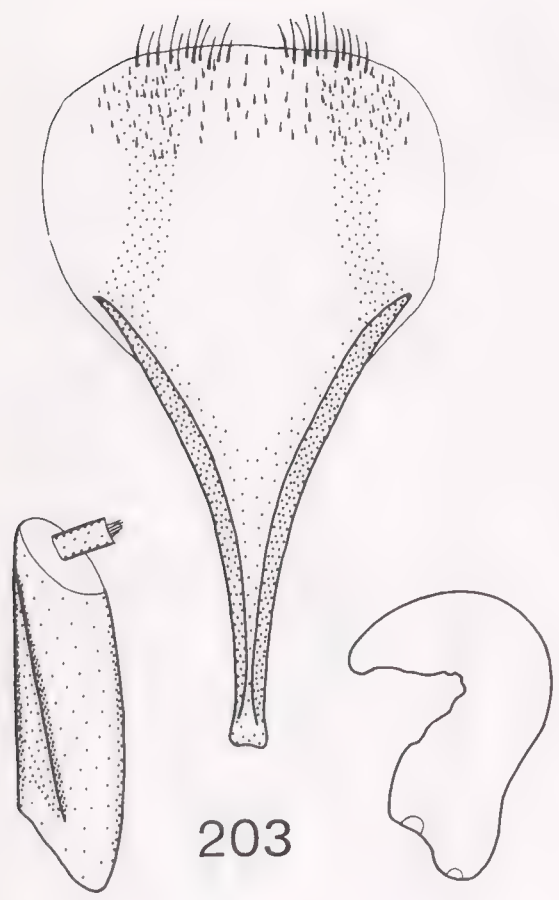
200

201



202

Figs. 193-202 - Female sternum VIII, gonocoxa and spermatheca of: 193. *Bagous affaber*; 194. *B. macedon*; 195. *B. exilis*; 196. *B. fuentei*; 197. *B. subruber*; 198. *B. septemcostatus*; 199. *B. petro*; 200. *B. geniculatus*; 201. *B. biimpressus*; 202. *B. dieckmanni*. Scale = 0.5 mm.



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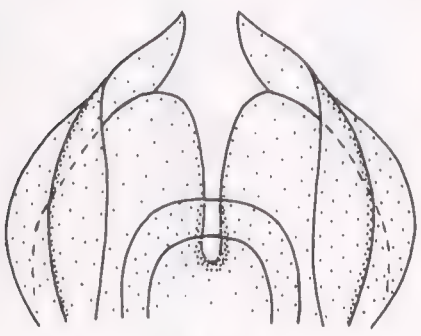

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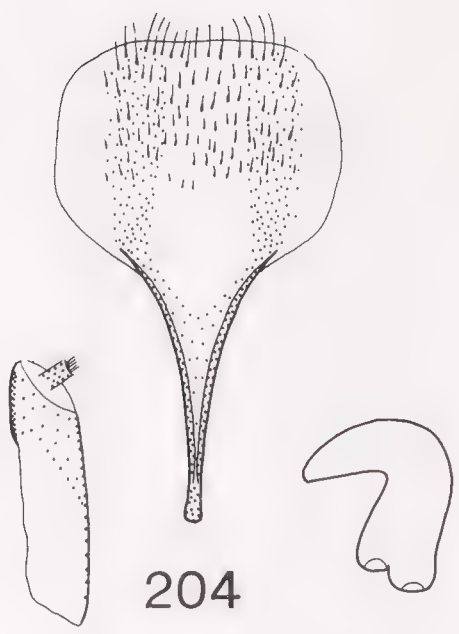

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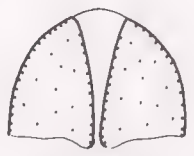

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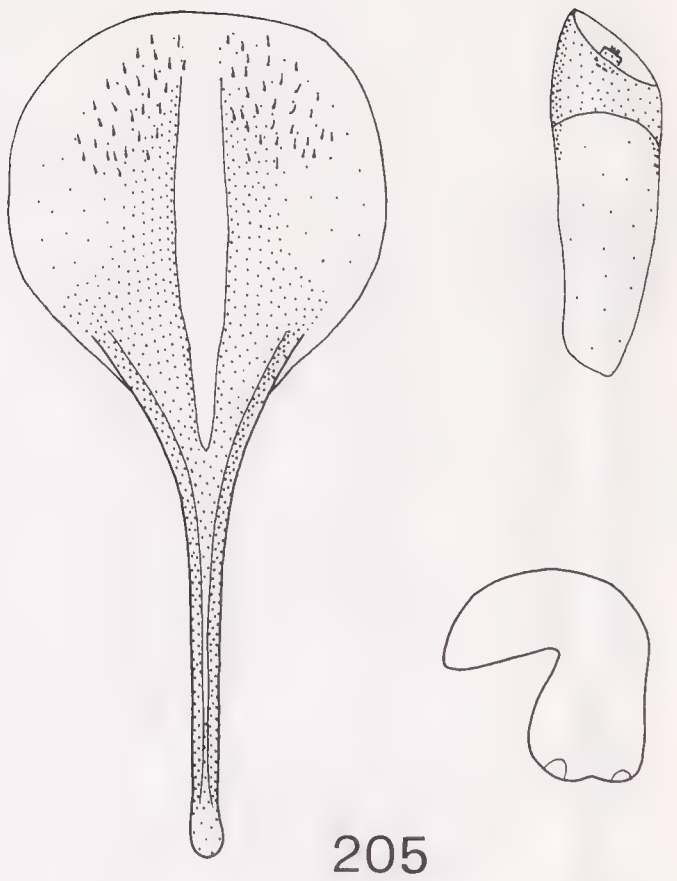

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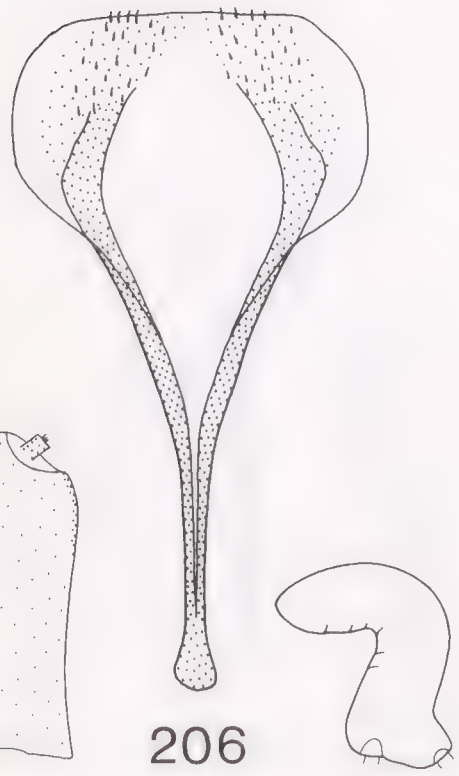
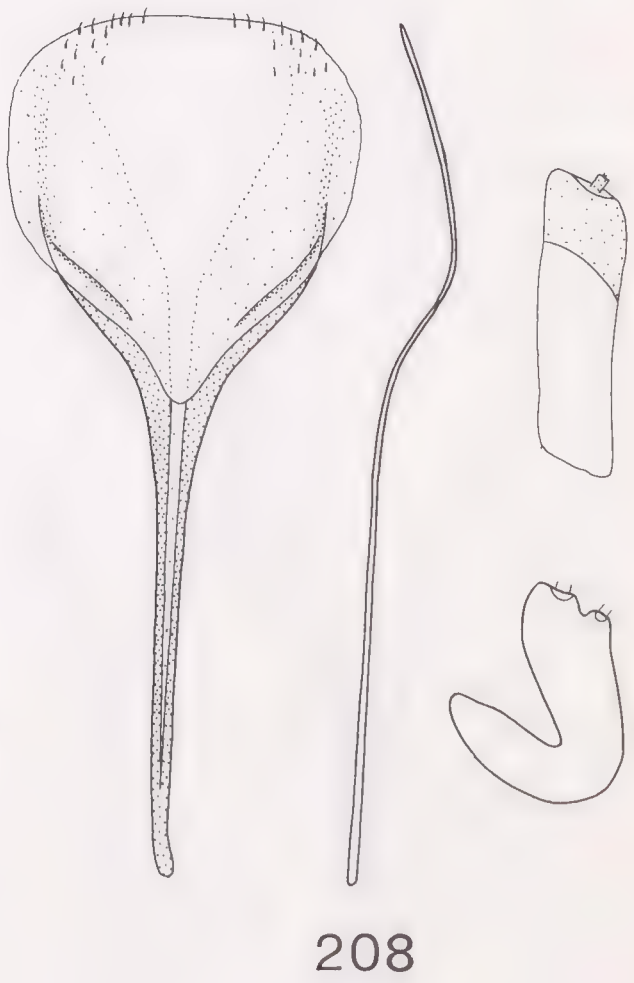


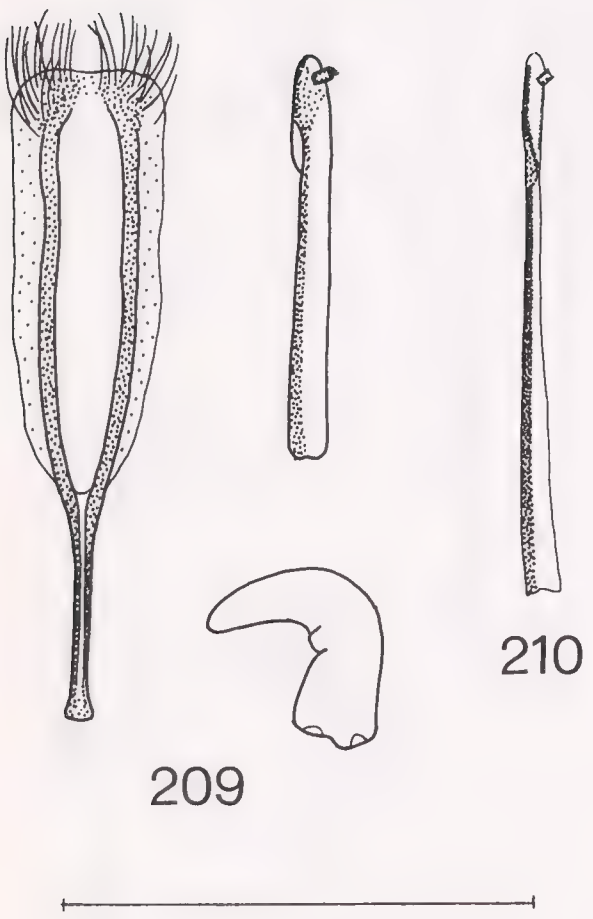
206

207



208

Figs. 203-208 - Female sternum VIII, gonocoxa, spermatheca and bursa copulatrix sclerites (a) of: 203. *Bagous argillaceus*; 204. *B. fremuthi*; 205. *B. lutosus*; 206. *B. meregallii*; 207; *B. sardiniensis*; 208. *B. bulgaricus*. Scale = 0.5 mm.



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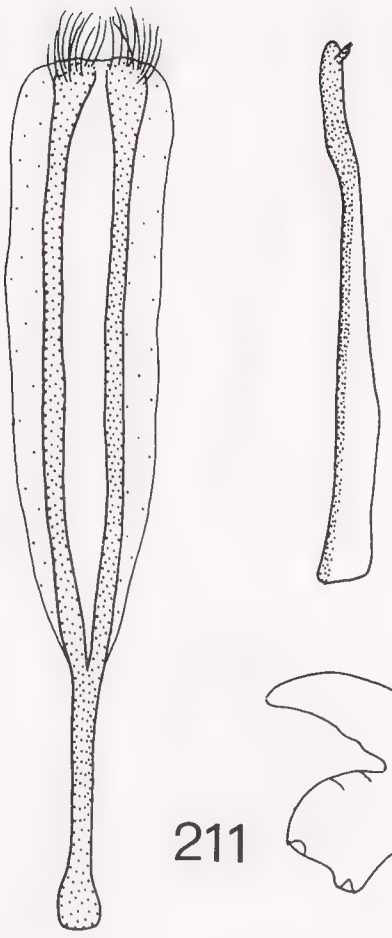

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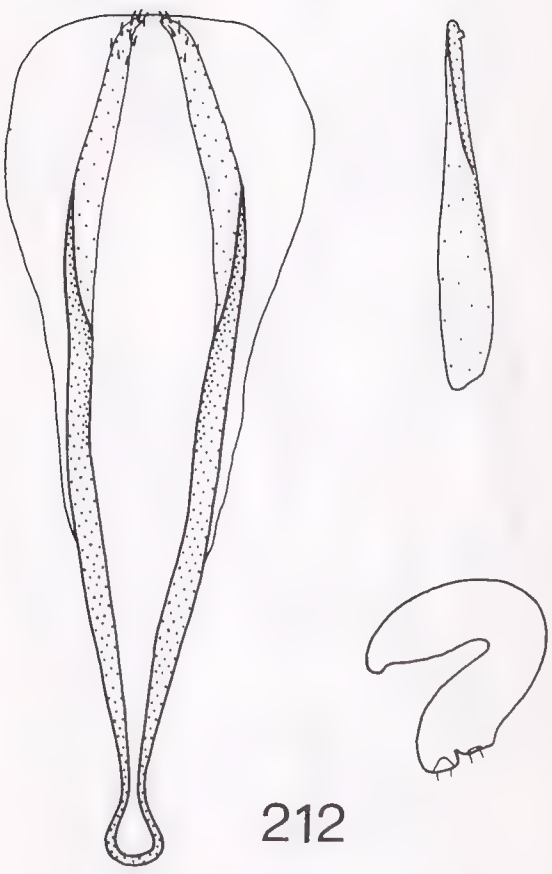

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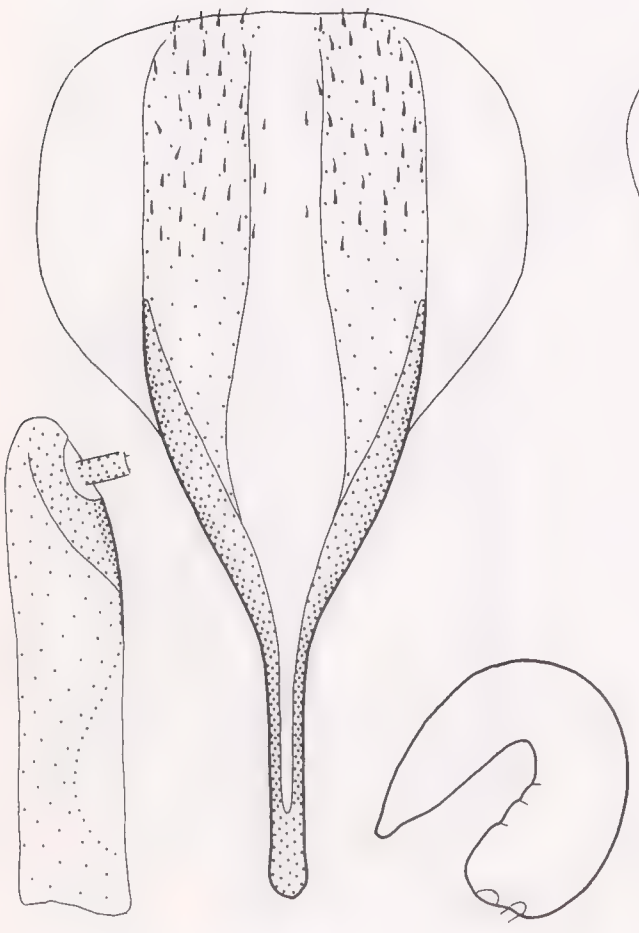

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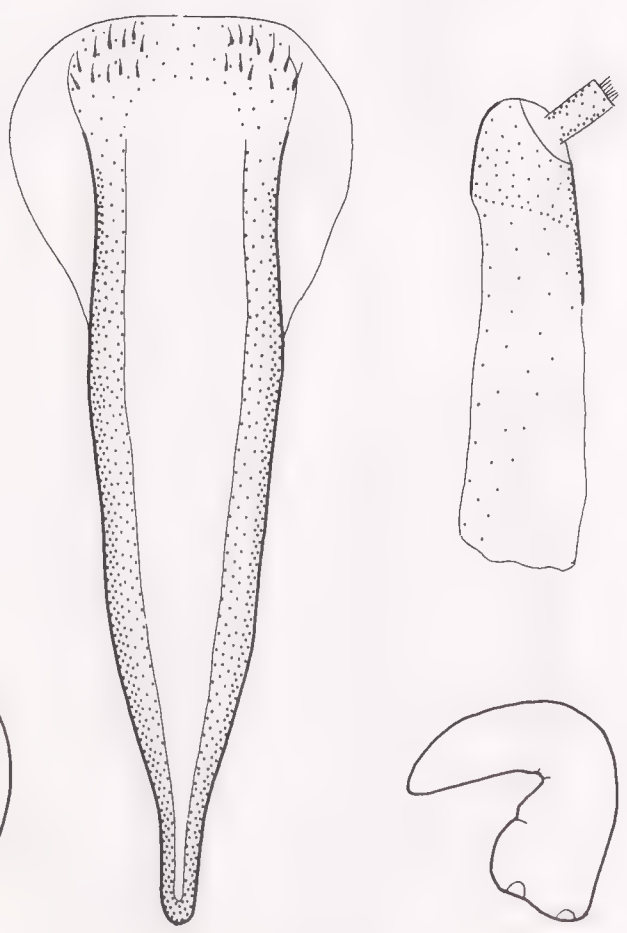

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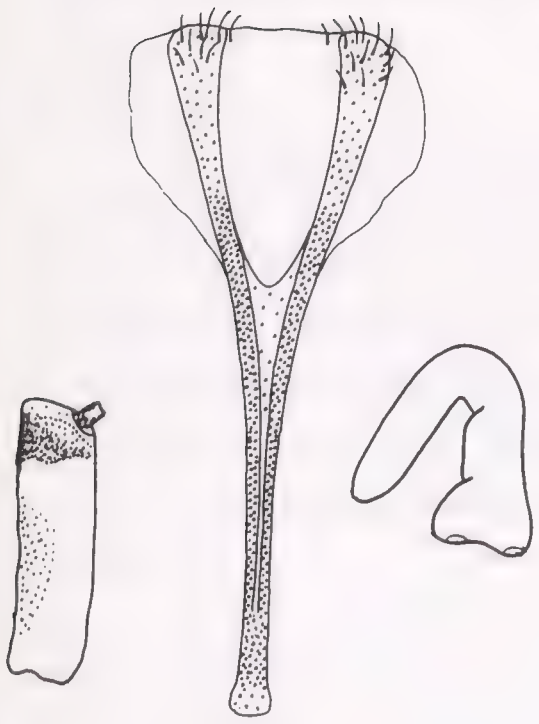
Figs. 209-215 - Female sternum VIII, gonocoxa and spermatheca of: 209. *Bagous mingrelicus*; 210. *B. frivaldszkyi*; 211. *B. elegans*; 212. *B. cylindricus*; 213. *B. nodulosus*; 214. *B. validus*; 215. *B. lyali*. Scale = 0.5 mm.



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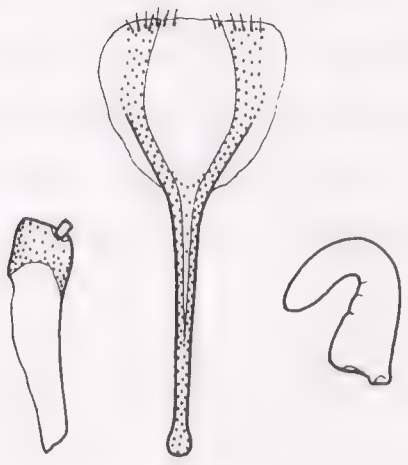

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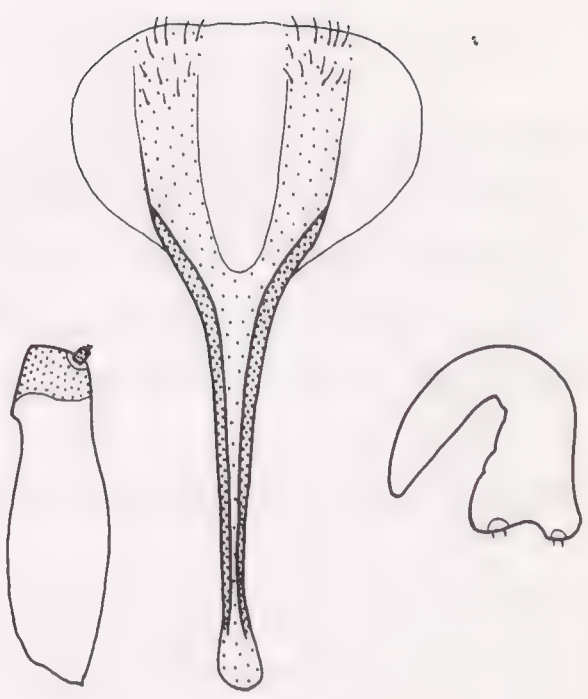

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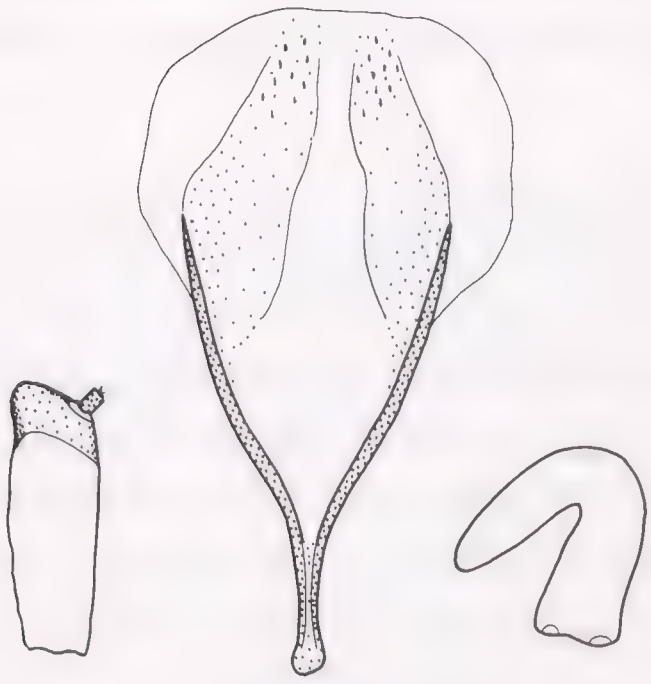

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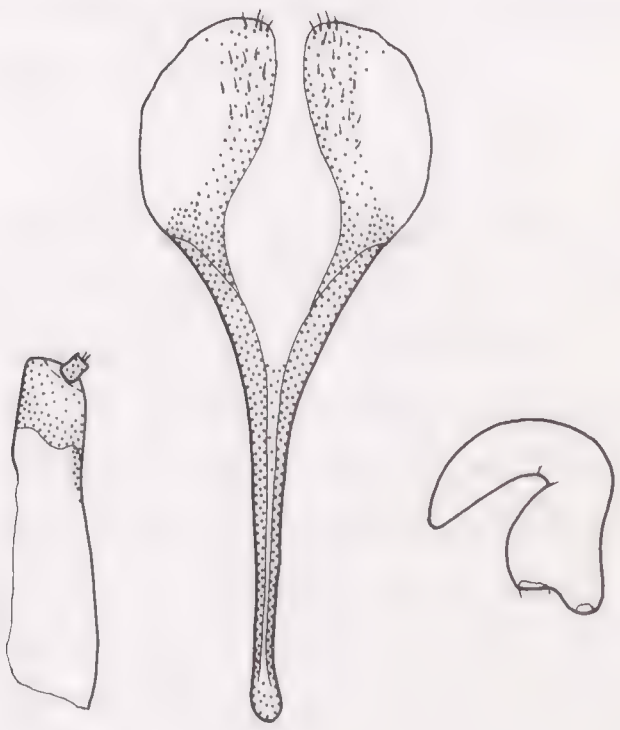

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Figs. 216-220 - Female sternum VIII, gonocoxa and spermatheca of: 216. *Bagous lutulosus*; 217. *B. lothari*; 218. *B. revelieri*; 219. *B. limosus*; 220. *B. frit*. Scale = 0.5 mm.

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L'autore deve adeguarsi alle disposizioni dell'*International Code of Zoological Nomenclature* (ultima edizione) e alle opinioni pubblicate dalla International Commission on Zoological Nomenclature. I nomi di tutti i taxa devono essere seguiti dal nome non abbreviato dell'autore e dall'anno di descrizione quando sono usati per la prima volta nel testo, ad es.: *Cryptocephalus* (*Burlinius*) *labiatus* (Linné, 1761). Le descrizioni di nuove specie devono riportare, preferibilmente nell'ordine, una breve diagnosi, la località tipica del taxon, i dati completi del materiale della serie tipica (località, data, raccoglitore, numero degli esemplari, collezione in cui sono conservati), descrizione, note comparative, eventuali altri dati. I titoli dei capitoli devono essere allineati al margine sinistro e occupare da soli una riga; i titoli dei paragrafi devono essere allineati al margine sinistro, seguiti da un punto e dal testo, sulla stessa riga.

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Le didascalie delle figure e delle tavole di figure devono essere redatte secondo gli schemi degli esempi seguenti:

Fig. 1. *Parabathyscia (P.) fiorii* Capra, holotypus ♂: habitus.

Figg. 2-5. *Parabathyscia (P.) fiorii* Capra (♂; Firenze: Fiesole): 2 - edeago in visione dorsale; 3 - idem, in visione laterale; 4 - apice del paramero destro; 5 - antenna.

BIBLIOGRAFIA

Nel testo, i riferimenti bibliografici devono essere citati, a seconda dei casi, come negli esempi seguenti: Binaghi (1951); (Binaghi, 1951); (Binaghi, 1951a, 1951b; Capra, 1958); (Binaghi, 1951: 18). Il nome di un coautore va unito con un "&" a quello del primo autore; nel caso in cui siano presenti tre o più autori va indicato il nome del primo autore seguito da "et al.," e dall'anno.

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BINAGHI G., 1974 - Il *Troglophloeus siculus* Rey nel Lazio. Ecologia e nuovi caratteri diagnostici (Coleoptera Staphylinidae). Bollettino della Società entomologica italiana, 106 (3-4): 49-53.

BINAGHI G., 1951 - Coleotteri d'Italia. Vita, ambienti, utilità, danni, mezzi di lotta. Briano, Genova, 210 pp.

MOHR K. H., 1966 - Familie: Chrysomelidae, pp. 95-299. In: H. Freude, K. W. Harde & G. A. Lohse (eds.). Die Käfer Mitteleuropas, 9 (88), Goecke & Evers, Krefeld.

CICERONI A., PUTHZ V. & ZANETTI A., 1995 - Coleoptera Polyphaga III (Staphylinidae), 65 pp. In: A. Minelli, S. Ruffo & S. La Posta (eds.). Checklist delle specie della fauna italiana, 48, Calderini, Bologna.

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Vengono accettate delle note brevi riguardanti reperti di Arthropoda della fauna italiana che rivestano particolare interesse per la novità dell'informazione sulla geonemia o l'ecologia delle specie trattate. Le segnalazioni vanno redatte sinteticamente riportando nell'ordine: - Specie (Ordine Famiglia); - Riferimento nomenclatoriale: la pubblicazione in base alla quale viene interpretato il taxon ed eventualmente i sinonimi di uso corrente; - Inquadramento: il motivo di interesse della segnalazione; - Reperti: località, data, raccoglitore, collezione in cui sono conservati gli esemplari, eventuali notizie sull'habitat; - Osservazioni: distribuzione generale del taxon mediante l'indicazione della categoria corologica di appartenenza, distribuzione segnalata in Italia con relativi riferimenti bibliografici abbreviati, ulteriori osservazioni complementari; - Autore e indirizzo.

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Supplemento al Bollettino della Società Entomologica Italiana, 130 (3) (31. 11. 1998)

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Mem. Soc. entomol. ital., 77: 3-5 *31 marzo 1999*

Emilio BALLETTO & Valerio SBORDONI

Arturo Sergio Beer
Ancona: 17 Dicembre 1903-Ospedaletti (IM): 8 Novembre 1997

Riassunto - Vengono qui ricordate la vita e l'attività entomologica di Arturo Sergio Beer, famoso specialista di Lepidotteri.

Abstract - *Arturo Sergio Beer. Ancona: 17 December 1903-Ospedaletti (IM) 8 November 1997*
The life and entomological activity of Arturo Sergio Beer, famous specialist of Lepidoptera, are here recalled.

Key words: Arturo Sergio Beer, commemoration.

Sintetizzare una vita in poche righe è difficile, una persona, è quasi impossibile, ma si può dire che ciò che ha sempre caratterizzato Sergio sia stata la curiosità per il meraviglioso mondo fisico e biologico che ci circonda, del quale non cessò mai di stupirsi e di entusiasmarsi. E così, laureatosi a Milano in Scienze Naturali con una tesi in radiobiologia (1927), divenne Assistente all'Istituto di Fisica con quel prof Aldo Pontremoli che scomparirà l'anno dopo con il "gruppo dell'involucro" nel disastro della spedizione Nobile al Polo Nord, col Dirigibile Italia.

Passato all'Entomologia Agraria col prof Remo Grandori, si occupò di bachicoltura, materia vicina alla sua famiglia (il padre era industriale in seta), materia nella quale, grazie alle sue ricerche e agli studi sull'istologia degli insetti, conseguirà la Libera Docenza nel 1932. L'anno dopo vinceva un concorso per un posto di Sperimentatore presso la Stazione Chimico-Agraria di Roma. Gli mancava però l'insegnamento, una capacità che gli era subito venuta spontanea fin dagli anni dell'università e partecipò così contemporaneamente a tre diversi concorsi per la Scuola Superiore Secondaria, vincendoli tutti e tre e finendo naturalmente per scegliere le Scienze, presso l'Istituto Tecnico di Treviglio (MI).

Il 1938 fu un anno molto importante per Sergio, che sposò la compagna della sua vita, Vincenza (Cenzi) Alessandroni, romana de Roma, donna di grande sensibilità artistica e letteraria, con un passato di teatro assieme a Cesco Baseggio e Antonio Gendusio e che sarà autrice, in seguito, di diversi libri e novelle, anche di successo. Erano anche tempi difficili però, soprattutto per chi, come Sergio, aveva origini ebraiche e nonostante la fede cattolica, sua e di sua moglie. Nel 1938 le leggi razziali gli fecero perdere l'insegnamento e lui si rintanò nella vecchia casa di Ancona e in un ambiente socioculturale che mal tollerava le manifestazioni ufficiali di razzismo. Qui, dal 1938 al 1942, trovò anzi il modo di riprendere a insegnare, per quanto non ufficialmente e solo per i ragazzi israeliti, esclusi dalla scuola pubblica.

Superato così il periodo bellico, che tra l'altro gli causò la perdita molto rimpianta di gran parte della collezione di farfalle, riebbe infine la sua cattedra a Roma, per l'insegnamento delle Scienze all'Istituto Tecnico. Ripresero anche gli incarichi esterni e le assegna-

zioni provvisorie, all'Istituto di Zoologia, al Centro Internazionale di Comparazione e Sintesi, al Centro Europeo dell'Educazione di Villa Falconieri, nel cui contesto fondò, assieme a G. Gozzer, il Comitato Nazionale per l'Educazione Scientifica (CNES), all'Ufficio Studi e Programmazione dell'Ispettorato per la Ricerca Scientifica (MPI), al Centro Nazionale per i Lincei, per il quale organizzò classi pilota di biologia e si occupò dello sviluppo dei laboratori centrali, alla Commissione del CNR per la Conservazione della Natura. Ebbe incarichi di insegnamento universitario, di Zoocolture (1946-53; 1962-72) e di Entomologia Agraria (1953-61). Già dal 1963, tuttavia, Sergio aveva lasciato l'insegnamento attivo per essere nominato Ispettore Centrale per le Scienze Naturali, presso la Direzione Generale per l'Istruzione.

L'età non gli tolse però mai il dinamismo e nel 1972, giunto al pensionamento, pensò bene di trasferirsi a Sanremo. I nuovi amici, fra cui soprattutto Peppino e Marisa Bestagno e i Borea d'Olmo, lo coinvolsero presto nelle vicissitudini legate alla creazione del Parco Nazionale delle Alpi Liguri, in favore del quale svolse un'attività intensa. Soprattutto con Peppino e con gli entomologi genovesi, compì innumerevoli escursioni in quelle montagne, allora ancora poco esplorate faunisticamente, e contribuì non poco alla loro conoscenza. L'età però ormai incalzava per i coniugi Beer, i quali dovettero lasciare l'appartamento di via Semeria per spostarsi al centro di Ospedaletti, riducendo poco a poco, come accade, il loro raggio d'azione. Vennero la morte di Peppino (1992), le infermità, le lunghe degenze, i molti problemi. Il colpo definitivo, però, fu la morte della sua Cenzi, il 17.9.1996. Sergio non se ne riprese mai e quasi non lasciò più il letto. Poco prima, lucidamente prevedendo il futuro e facendo fede a un vecchio impegno quasi testamentario, aveva voluto donare la collezione a noi scriventi "perché non vada dispersa".

Sergio professionalmente fu soprattutto interessato alla didattica e alla divulgazione ed è a queste attività che dedicò la maggior parte delle sue energie e da cui trasse le maggiori soddisfazioni. Organizzò e collaborò in vario modo a numerosissimi convegni sugli insegnamenti scientifici, a corsi di aggiornamento per Presidi o Insegnanti, anche avanzando proposte originali per i nuovi programmi d'insegnamento. Partecipò come delegato italiano o come esperto internazionale a seminari presso l'UNESCO (Madrid 1953), la Fondation Européenne pour la Culture (Copenhagen 1960), L'OCSE (Vevey 1962, Hellebaek 1964, Parigi 1966, 1967), il Consiglio d'Europa (Strobl 1968, Strasburgo 1968, 1969, 1970, Francoforte 1966). Partecipò su invito dei rispettivi Governi, per l'OCSE, o per l'IUCN a missioni in Francia, Belgio e Olanda, o tenne lezioni di aggiornamento per insegnanti in Belgio, Portogallo e Turchia. Organizzò e diresse i corsi di aggiornamento in Ecologia per insegnanti del Belgio a San Vito di Cadore e a Foligno, da cui scaturirà, fra l'altro, un bel libro di Radioecologia. In riconoscimento di questa gran massa di lavoro fu nominato Cavaliere Ufficiale nel 1968, Commendatore della Repubblica nel 1972, Medaglia d'Oro del MPI dei benemeriti della scuola, cultura e arte nel 1972. Nel frattempo Sergio, oltre a scrivere 140 articoli di didattica delle scienze su periodici scolastici, si dedicava assiduamente alla divulgazione scientifica, pubblicando 242 articoli solo sul Messaggero, ma molti altri sul Corriere della Sera e su periodici vari; teneva 700 conferenze in ambiente scolastico e 125 in vari ambienti culturali, oltre a 70 in radiotrasmissione. I libri da lui pubblicati sono 9; 5 altri restarono inediti per circostanze belliche. Numerosi articoli trattano problemi epistemologici ed evoluzionistici, altri di conservazione biologica e di molti altri argomenti.

Ci si può quindi stupire di come, per quanto numerose, siano poche in proporzione le pubblicazioni dedicate alle farfalle, nonostante Sergio ne fosse uno studioso appassionato e profondo, oltreché attento raccoglitore, e nonostante le farfalle siano certo state la passione della sua vita. Bisogna allora rifarsi alla generosità del suo animo, al suo senso della didattica e del servizio. I suoi dati furono pubblicati un po' da tutti, qualcuno anche dagli scriventi, ma la gran parte fu inclusa nell'opera di Roger Verity sulle Farfalle Diurne d'Italia, dove il nome di Sergio Beer compare ogni poche pagine.

Chi ha ascoltato la sua prolusione al Congresso internazionale di Lepidotterologia di Sanremo (1987), di cui Sergio è stato il Presidente onorario, o ne ha almeno letto il riassunto pubblicato sul Bollettino della S.E.I., sa che Sergio era la memoria storica della Lepidotterologia italiana. Ha conosciuto tutti e di tutti è stato un amico, da Orazio Querci ai Romei, ai Prola, a Rocca, a Rocci, a Turati, a Verity, a Hartig, a Berio, a Taccani e molti altri; su tutti aveva qualcosa da raccontare, di gentile, di sottilmente scherzoso, comunque di affezionato. E moltissimi, fra cui noi, gli hanno voluto bene.

È chiaro, da quanto abbiamo detto, che non possiamo riportare qui l'elenco dei lavori di Sergio Beer. Ci vorrebbe un intero fascicolo solo per quello. Siamo però a disposizione di chiunque fosse interessato a inviarne una copia. Elenchiamo quindi qui di seguito solo alcuni fra i lavori di interesse entomologico o anche più generale e che certo interesseranno i lettori.

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Mem. Soc. entomol. ital., 77: 7-25 *31 marzo 1999*

Cesare CONCI

Livio Tamanini (1907-1997)

Riassunto - Si tratteggia la figura di Livio Tamanini, studioso "amateur" di notevole rilievo, a livello europeo, nei campi della tassonomia e faunistica degli Emitteri Eterotteri, degli Omotteri Psilloidei e di alcuni gruppi di Coleotteri (Trechini e Scafididi). Si evidenziano anche le sue benemerenze al riguardo delle Istituzioni scientifiche della sua città, Rovereto. Si riporta l'elenco dei suoi 172 lavori entomologici.

Abstract - *Livio Tamanini (1907-1997).*
The figure and the activity, especially in entomology, of Livio Tamanini are sketched. This Author, primary school-teacher, was an amateur student of remarkable importance, at European level, mostly in the fields of taxonomy and faunistic of Hemiptera Heteroptera, Homoptera Psylloidea and some groups of Coleoptera (Trechinae and Scaphidiidae). Also the well deserving activities of Tamanini as regarding the scientific Institutions of his town: "Museo Civico of Rovereto" and "Accademia Roveretana degli Agiati" are pointed out. The list of his 172 original publications is reported.

A Livio Tamanini sono stato legato da vincoli di grande amicizia e di stima; la sua vita di naturalista e di studioso fu strettamente intrecciata con la mia sin dalla gioventù.

Era una di quelle singolari figure che, nel nostro campo, seppero assurgere, al di fuori delle grandi Istituzioni, ad una fama scientifica ed a una considerazione generale di alto livello.

1. LA VITA - Il Nostro nacque il 25.2.1907 a Pieve di Ledro in Trentino, allora appartenente all'Impero Austro-Ungarico, da padre di Vigolo Vattaro (paese presso Trento) e da madre ladina, di San Cassiano in Val Badia.

Nel 1915, all'inizio della guerra, la zona fu evacuata, essendo vicina al confine, e la famiglia andò profuga a Rovereto, poi a Bolzano, Innsbruck e Tione, nelle Giudicarie. E proprio a Tione il Tamanini cominciò a dieci anni, nel 1917, la collezione di farfalle, segno di un precocissimo innato interesse naturalistico, che andrà poi via via sempre aumentando.

Alla fine del 1918, terminata la guerra, la famiglia si trasferì definitivamente a Rovereto, dove Tamanini frequentò le scuole medie e conseguì nel 1925 il diploma di computista commerciale, iniziando il lavoro di contabile presso un'azienda. La permanenza a Rovereto, città ricca di tradizioni e attività culturali, gli permise di entrare in contatto, verso il 1920, con Bernardino Halbherr, noto entomologo roveretano, autore dei cataloghi "Elenco sistematico dei Coleotteri finora raccolti nella Valle Lagarina" in 12 fascicoli (1885-1931) e "Gli Emitteri Eterotteri della Valle Lagarina" (1912).

La conoscenza dell'Halbherr fu fondamentale per lo sviluppo della sua passione naturalistica. Alla primitiva collezione di farfalle (poi andata distrutta) si affiancò la raccolta dei Coleotteri e più tardi quella degli Emitteri Eterotteri. Per lo studio di questi due gruppi poteva utilizzare l'esperienza, la biblioteca ed il materiale di confronto dell'Halbherr; molto utile gli fu la buona conoscenza della lingua tedesca, allora fondamentale.

Key words: Livio Tamanini, commemoration.

Fig. 1. Ai tempi delle ricerche speleologiche dei Gruppi Grotte SAT. All'ingresso della Grotta del Calgeron, in Valsugana, 1952. Da sinistra: Tullio Perini, Emilio Roner, Cesare Conci, Livio Tamanini, Eraldo Marighetti, Angelo Pasa, in atteggiamento scherzoso, Antonio Galvagni. Foto Giuliano Perna (Archivio Museo Civico Rovereto).

Nel 1921 conobbe anche il prof Giovanni de Cobelli, Direttore del Museo Civico di Rovereto, mitica figura di insegnante e di naturalista, che tenne la Direzione di quella Istituzione per quasi 58 anni. Il Cobelli, intuendo le ottime qualità del giovanissimo naturalista, gli facilitò la frequentazione del Museo; subito il Tamanini, molto attivo e pieno di buona volontà, iniziò ad occuparsi del riordino delle collezioni e della biblioteca, che, causa la guerra, erano in completo disordine. Il 3.XI.1930, a 23 anni, fu nominato "Socio attivo" della "Società Museo Civico di Rovereto" (Ente privato che di fatto era il proprietario delle collezioni del Museo e ne gestiva l'attività, sotto l'egida ed il controllo del Comune), nel 1936 Bibliotecario e l'anno dopo Segretario e Conservatore per l'Entomologia e l'Erpetologia.

Nel 1938 si sposò con Franca Rizzo, unione rivelatasi quanto mai felice.

Nel frattempo, pensando che la professione di insegnante gli avrebbe lasciato più tempo libero rispetto a quella di contabile, aveva conseguito da privatista il diploma magistrale, iniziando l'attività didattica nel circondario di Rovereto. Nel 1938 vinse il concorso nazionale per il passaggio di ruolo.

Aveva appena raggiunta la possibilità di disporre di parecchio tempo per i suoi studi prediletti, quando nel 1939 fu richiamato sotto le armi. Il servizio militare lo tenne

Fig. 2. Livio Tamanini al Lago di Tenno, a caccia di Eterotteri acquatici, 1966 (Foto C. Conci).

impegnato per ben cinque anni; fu con la Divisione Alpina Tridentina sul fronte francese, in Albania e in Montenegro, raggiungendo il grado di Capitano. Nella Penisola Balcanica contrasse un'infezione amebica che lo tormentò poi per tutta la vita.

Finalmente nel 1945, congedato, riprese l'insegnamento ad Aldeno e quindi a Rovereto, dove trascorse il rimanente della vita. Venne collocato in pensione per limiti d'età nel 1971. Fu attivissimo fin verso il 1987 (aveva 80 anni quando andammo insieme per l'ultima volta a raccogliere Psille in Calabria e Basilicata). Poco dopo cominciò progressivamente ad indebolirsi. Nel 1993 una serie di infarti cerebrali lo distrussero fisicamente ed intellettualmente. Concluse la sua giornata terrena dopo cinque anni di debilitante paralisi, curato in modo ammirevole dalle figlie, il 4 aprile 1997; aveva da poco compiuto i 90 anni.

2. La produzione scientifica - In campo entomologico Tamanini raggiunse in Italia, in oltre sessant'anni di lavoro, una posizione di notevole prestigio e va considerato, tra i non professionisti, una delle figure di maggiore spicco.

Un po' alla volta, con notevoli sacrifici, si era attrezzato a casa un buon laboratorio, con tutto il necessario per la ricerca. La sua produzione si compendia in 172 lavori originali (di cui 48 in collaborazione con chi scrive), alcuni di mole e di sintesi, corredati da oltre duemila ottimi disegni originali, da lui stesso eseguiti alla camera lucida e poi tirati in china.

La sua attività si rivolse soprattutto allo studio faunistico e tassonomico di alcuni gruppi di Coleotteri, degli Emitteri Eterotteri e degli Omotteri Psilloidei.

Iniziò lo studio entomologico con i Coleotteri, ai quali dedicò 20 pubblicazioni, relative a 7 famiglie. Il suo primo lavoro (1) risale al 1934, quando aveva 27 anni, e riguarda la descrizione della *Bathysciola (Hartigia) baldensis* 'var.' *lagariniensis* n.

(entità attualmente ascritta al genere *Boldoria*, famiglia Cholevidae), interessante troglobio rinvenuto in una grotta presso Rovereto (il "Bus de la Padela"). Questo lavoro è collegato alle ricerche faunistiche nelle grotte trentine, che impegnarono Tamanini per oltre vent'anni, a partire dal 1929, allorché partecipava all'attività del Gruppo Grotte SAT di Rovereto e che gli fruttarono molte interessanti scoperte. Tra i contributi dedicati ai Cholevidae (1, 19, 21, 28, 32) ricordiamo la revisione dell'interessante genere *Aphaotus* (19), nella quale descrisse il nuovo genere *Halbherria*, dedicandolo a Federico Halbherr, suo Maestro in Entomologia, e la descrizione della *Bathysciola* (*Salfia* n. subgen.) *ruffoi* del Pollino (34).

Nel campo dei Coleotteri cavernicoli vanno menzionati anche gli accurati lavori sui Trechini troglobi del genere *Orotrechus* delle Prealpi Trentine e Venete (3, 23, 24, 29, 43), che costituiscono un "classico" della letteratura italiana sull'argomento. Sugli Pselafidi scrisse due note giovanili (2, 4), mentre su Silfidi e Liodidi vi sono riferimenti nella (34).

Di importanza notevole risultano i contributi su Scaphidiini e Scaphisomini (27, 34, 89, 90, 91, 92), taxa da lui per primo separati al rango di famiglie distinte (91) e poi trattati per la fauna italiana in un'ottima monografia (92).

Ma veniamo ora al suo gruppo prediletto, che più di ogni altro gli diede soddisfazioni e nel quale si affermò tra i più validi specialisti in campo nazionale ed internazionale. Mi riferisco naturalmente agli Emitteri Eterotteri, di cui iniziò ad occuparsi fin dal 1930 e su cui i primi lavori furono pubblicati solo nel 1946, a 39 anni; a questi ne seguirono, a valanga e senza soste, un'ampia serie, per un totale di ben 91 contributi, di varia mole. Molti contengono descrizioni di specie nuove (per massima parte tuttora valide), o ridescrizioni di specie poco conosciute, o revisione di gruppi critici. Amplissimo fu l'apporto dato da Tamanini alla corologia degli Eterotteri italiani, sempre trattata con minuziosa precisione, nonché alla loro zoogeografia. Tra i lavori più importanti in questi ultimi campi vi sono i contributi sugli Eterotteri del Pollino (64), con trattazione di 242 specie, del Trentino (68 ed altri), delle Isole Egadi, Eolie ed Ustica (104), con 201 specie, ma soprattutto le poderose rassegne sugli Eterotteri dell'Alto Adige (129), in cui tratta ben 582 specie, e della Basilicata e Calabria (126), con l'esame di 630 specie.

In campo tassonomico, si occupò di molte famiglie. Per la descrizione delle specie e nella revisione di gruppi critici individuò nuovi importanti caratteri morfologici, che facilitavano il riconoscimento di taxa affini. Non è possibile in questa sede entrare in dettagli e mi limiterò pertanto ai lavori principali. Predilesse gli Eterotteri acquatici e particolarmente il difficile genere *Velia*, sul quale pubblicò ben 23 lavori (8, 9, 12, 17, 18, 22, 25, 26, 31, 33, 35, 44, 47, 49, 56, 57, 81, 85, 87, 93, 94, 95, 122), affermandosi come il più competente specialista per tutta la fauna paleartica occidentale, che sottopose a totale revisione. Sugli Eterotteri acquatici pubblicò nel 1379 nella serie "Guida per il riconoscimento delle specie animali delle acque interne italiane" del CNR, un'ottima monografia, bene illustrata, con la trattazione di tutti gli 80 taxa specifici e sottospecifici pertinenti alla fauna italiana (122).

Al riguardo delle altre famiglie di Eterotteri, sono stati prediletti Aradidae (14, 37, 41, 98, 105, 108), Berytidae (77), Coryzidae (ora Rhopalidae, 16), Lygaeidae (66, 67, 69, 72, 106), Miridae (13, 15, 36, 40, 62, 73, 79, 96, 97, 99, 102, 109, 110, 111, 112, 113,

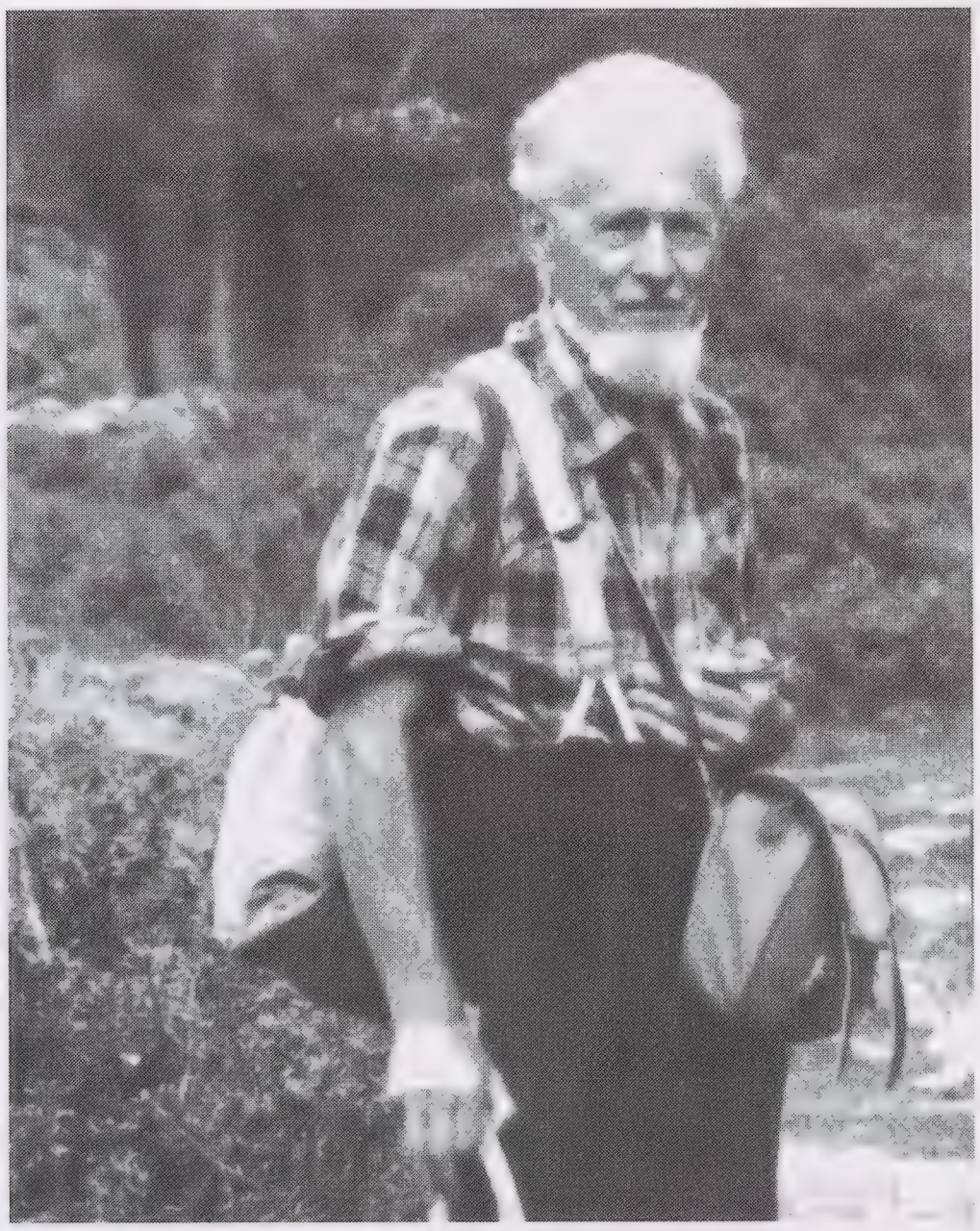

Fig. 3. Livio Tamanini, Torrente Grigno (Trentino), 1973 (Foto C. Conci).

115, 120, 123, 125, 127), Nabidae (101), Pentatomidae (46, 51, 53, 55, 58, 61, 63, 65, 71, 74, 75), Reduviidae (72) e Tingidae (107).

L'apprezzamento, in campo internazionale, delle ricerche di Tamanini può essere dimostrato dal fatto che nella maggiore opera di sintesi tassonomica sugli Eterotteri europei, le "Bestimmungstabellen der Wanzen" dello Stichel, l'Autore ricorre al Nostro per la stesura delle parti relative ai generi *Velia*, (35), *Codophila* (63), *Carpocoris*, *Dolycoris* ed *Eudolycoris*.

In molti lavori vi sono anche riferimenti biologici, spesso assai interessanti, che dimostrano il suo acuto spirito di osservazione in natura ed in laboratorio. Mi limito a citare i magistrali studi sugli *Aradus* (37, 41).

Particolare menzione va qui fatta, a chiusa dei commenti sui suoi contributi riguardanti gli Eterotteri, al grosso lavoro di sintesi "Tabelle per la determinazione dei più comuni Eterotteri italiani", steso per la "Piccola Fauna Italiana" dell'Editore Martello, ambiziosa iniziativa che purtroppo si arenò dopo i due primi volumi, riguardanti i Vertebrati (1968-1969). Il ponderoso lavoro sugli Eterotteri (160) venne pubblicato molti anni più tardi, nel 1989, aggiornato, sulle Memorie della Società Entomologica Italiana; questo lavoro, prevalentemente compilativo, risulta comunque di grande utilità: vi sono trattate tutte le 37 famiglie del gruppo, 240 generi su circa 395 e circa 400 specie su quasi 1400. I disegni, quasi tutti originali, sono circa 500.

Il terzo grande filone di ricerca entomologica del Tamanini, in ordine di data, riguarda gli Omotteri Psilloidei. Il Nostro, durante le sue cacce, aveva raccolto anche

buon numero di Psille, che accantonò, riservandosi di studiarle in seguito. In pari tempo aveva radunato la bibliografia essenziale su questo difficile gruppo, la cui tassonomia richiedeva impegnativi aggiornamenti. Sulle Psille, dal 1955 al 1977, Tamanini pubblicò 6 note (30, 83, 116, 117, 118, 119). Quando andai in pensione, nel 1981, liberandomi dall'assillante impegno della Direzione del Museo di Storia Naturale di Milano, Tamanini mi propose di affrontare insieme lo studio di questo taxon, fruendo dei dati da lui già raccolti. Accettai la proposta e con entusiasmo giovanile ci gettammo sulle Psille, dividendoci i compiti ed ottenendo in tempi relativamente brevi ottimi risultati, concretizzati in 39 pubblicazioni, firmate congiuntamente, tutte illustrate con dovizia dall'abile mano di Tamanini.

Circa nel medesimo periodo anche il Collega prof Carmelo Rapisarda, all'altro estremo d'Italia, aveva affrontato seriamente lo studio dello stesso gruppo. I risultati delle indagini al riguardo superarono ogni più rosea previsione e le nostre conoscenze sulle Psille italiane furono portate ad un ottimo livello, come esposto in recenti lavori, culminati nel grosso Catalogo ragionato, a tre nomi (171, 172).

Pochissime pubblicazioni di Tamanini esulano dai tre menzionati grandi filoni di ricerca. Mi limito a ricordare le biografie su Alberto Brasavola de Massa (42, 45, 48), Natale Filippi (60), Cesare Mancini (88), Alessandro Kiricenko (100), Eduard Wagner (121) e Alessandro von Peez (135).

Un accenno anche alle 15 recensioni e ad alcune note di divulgazione didattica, stese nei primi anni del suo tirocinio nella scuola (cfr. paragrafi 7b e 7c).

Tra gli argomenti oggetto della sua attenzione, posso menzionare infine le numerose raccolte sui funghi secchi (Polipori), dai quali radunò molto materiale, in particolare di Coleotteri Cisidi, che però non venne ulteriormente elaborato, eccetto una nota orientativa (70). L'unico gruppo studiato, connesso a questo biotopo, fu quello dei Coleotteri Scafididi, di cui ho già parlato.

3. LE COLLEZIONI, LA BIBLIOTECA E GLI SCHEDARI - Tamanini, essendo sostanzialmente un tassonomista, aveva come base di lavoro la collezione entomologica. Era un raccoglitore instancabile e appassionato ed un collezionista nato. Con numerosissime escursioni e campagne di ricerca in ogni regione d'Italia, integrate da scambi oculati, costituì tre grandi collezioni: di Coleotteri, di Eterotteri e di Psilloidei, oltre ad una minore di Auchenorrinchi. Tutte furono cedute, per espressa sua volontà, ad un prezzo simbolico, al Museo Civico di Rovereto, insieme ai relativi accurati schedari degli Eterotteri e degli Psilloidei ed alla preziosa biblioteca specializzata, messa insieme un po' alla volta con impegno e sacrifici.

La collezione di Coleotteri comprende circa 16.000 esemplari, soprattutto del Trentino. Quella di Eterotteri, la maggiore costituita finora in Italia da un privato, supera le 1.600 specie ed i 43.000 esemplari. Quella di Psille, infine, è praticamente l'unica sul gruppo esistente attualmente in un Museo italiano. Il valore di queste collezioni è aumentato per la presenza dei Tipi di molte decine di specie descritte dal Nostro.

4. L'ATTIVITÀ MUSEOLOGICA ED ACCADEMICA - Tamanini era un entomologo "dilettante", un "amateur", nel senso aulico del termine, cioè studiava gli insetti per innata passione di

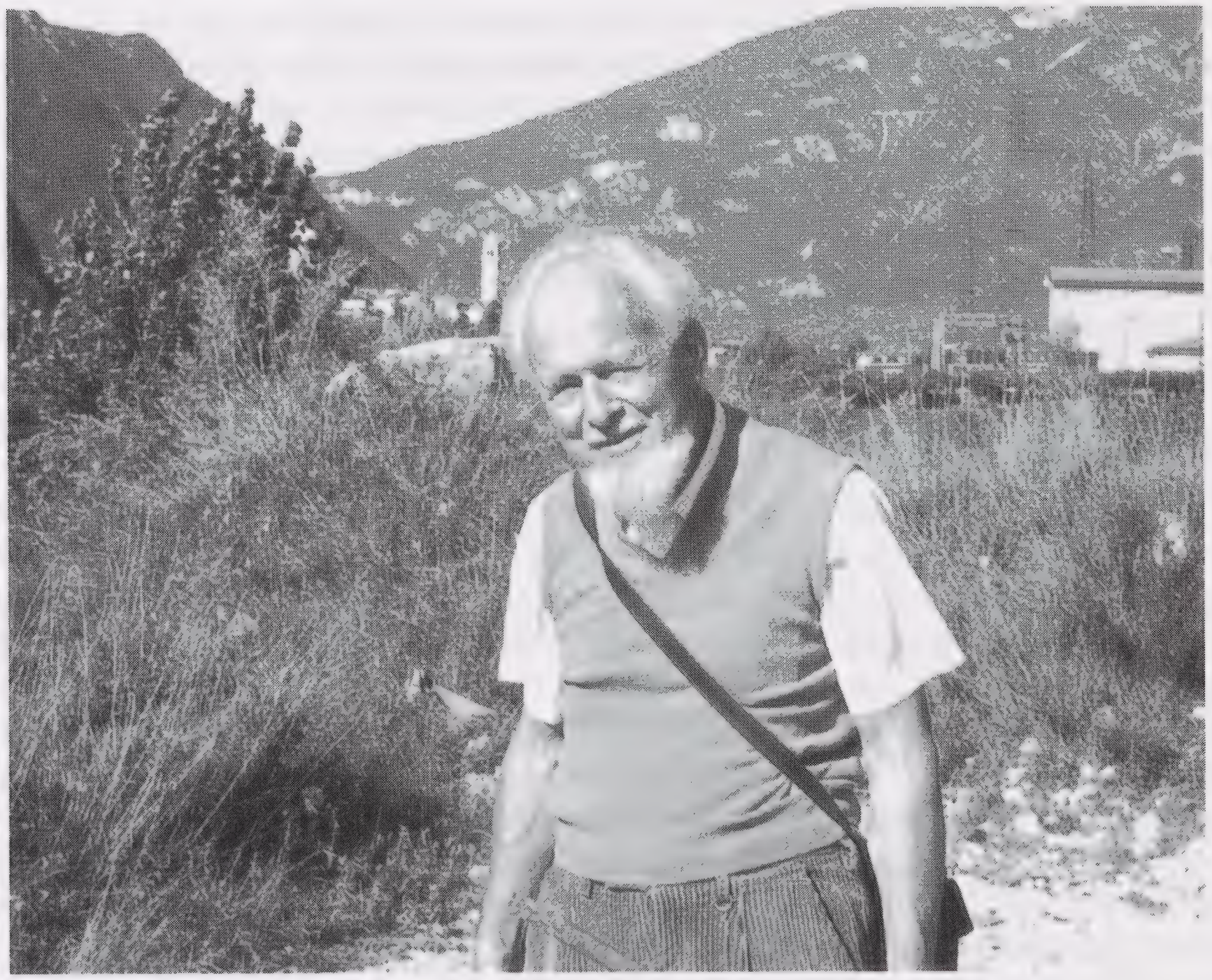

Fig. 4. Livio Tamanini, Val Lagarina, 1982 (Foto C. Conci).

ricerca, al di fuori della sua professione di insegnante di scuola elementare. Ma era anche persona socievole ed altruista. Fin da giovanissimo si appoggiò agli Enti scientifici della sua città, a cui fu sempre oltremodo affezionato, e dedicò loro un'enormità di tempo e di energie, sempre del tutto gratuitamente. Ho già ricordato all'inizio l'impegno di Tamanini poco più che ventenne a vantaggio del Museo di Rovereto. La sua collaborazione a questa nobile Istituzione continuò per tutta la vita. In occasione del centenario del Museo, aperto al pubblico nel 1855, Tamanini pubblicò, in collaborazione col sottoscritto, una "Guida del Museo Civico di Rovereto" (50) di ben 106 pagine, che in realtà era una monografia sul medesimo, trattandone gli scopi, la storia, le varie collezioni, la biblioteca, le pubblicazioni. Nel 1976 ne venne edita una seconda edizione (114).

Poco dopo il suo collocamento in pensione, nel 1973, Tamanini fu nominato Direttore del Museo e da allora la sua attività al riguardo divenne ancor più intensa, impegnandolo a lavorarvi in sede tutti i giorni, compreso il sabato, con una solerzia ed una capacità ammirevoli. Favorito dal fatto che la neocostituita Provincia autonoma di Trento aveva iniziato a concedere agli Enti culturali sostanziosi mezzi finanziari (mentre in precedenza le possibilità economiche erano sempre state assai modeste), Tamanini riuscì, in stretta collaborazione col Presidente della "Società Museo Civico di Rovereto", prof Paolo Antolini, a cambiare completamente la struttura del nostro antico e glorioso Museo, imprimendogli una decisa spinta all'innanzi. Ma soprattutto riuscì, dopo anni di

estenuante lavoro, a portare a buon fine la fondamentale e complessa pratica amministrativa per passare il Museo dalla gestione di Società privata, sotto l'egida ed il controllo del Comune, direttamente all'Amministrazione Civica della città di Rovereto, con un proprio organico. Di modo che al principio del 1983 iniziò il servizio, come Conservatore, il primo funzionario di ruolo del Museo, il dr Franco Finotti. Con la fine del 1983 Tamanini, festeggiatissimo, rinunciò alla carica di Direttore del Museo, al quale continuò comunque per diversi anni ancora a prestare attiva collaborazione.

Il Nostro era pure Conservatore Onorario del Museo Tridentino di Scienze Naturali in Trento, di cui curò la sistemazione della collezione emitterologica; il Museo di Trento aveva finanziato anche parzialmente sue ricerche soprattutto nelle zone xerotermiche dell'Alto Adige e più recentemente in Sud Italia.

Era altresì Conservatore Onorario del Museo Civico di Storia Naturale di Verona e aveva partecipato a diverse campagne di ricerca sull'Appennino e in Sicilia, promosse da questo Museo, talora insieme ai colleghi Ruffo, Magistretti, Galvagni e Conci. Fu pure in ottimi rapporti con molti altri Musei naturalistici italiani e stranieri, determinandone materiali nei campi delle sue specializzazioni.

Al riguardo dell'antica, bicentenaria Accademia Roveretana degli Agiati, onore culturale della città di Rovereto, ne fu Socio Ordinario, poi Bibliotecario, Segretario, Tesoriere ed infine Condirettore degli "Atti"; sempre fu prodigo nella collaborazione.

Per le sue alte benemerenze entomologiche, Tamanini ebbe l'onorifica carica di Consigliere (1958-1991) della Società Entomologica Italiana, di cui era Socio dal 1939. Nel 1977 fu eletto Socio straordinario dell'Accademia Nazionale Italiana di Entomologia e per un certo periodo fu l'unico Socio non professionista di questa prestigiosa assise, segno dell'altissima considerazione che anche l'Entomologia ufficiale aveva per le sue capacità.

Colleghi, amici e allievi gli dedicarono, in segno di stima, non meno di 17 taxa (due generi e 15 specie o sottospecie):

Tamaninia n. gen. *rara* Conci, 1941 (Mallophaga).
Lithobius tamaninii Manfredi, 1948 (Chilopoda).
Chthonius tamaninii Di Caporiacco, 1952 (Arachnida Pseudoscorpiones).
Dicyphus tamaninii E. Wagner, 1953 (Heteroptera Miridae).
Niphargus kochianus tamaninii Ruffo, 1953 (Crustacea Amphipoda).
Ephippiger perforatus tamaninii Galvagni, 1956 (Orthoptera)
Sipalia tamaninii Scheerpelz, 1956 (Coleoptera Staphylinidae).
Streptopyx tamaninii Linnavuori, 1958 (Homoptera Cicadellidae).
Chlorita tamaninii W. Wagner, 1959 (Homoptera Typhlocybidae).
Scaphosoma tamaninii Löbl, 1965 (Coleoptera Scaphididae).
Antheminia eurynota tamaninii Kerzhner, 1972 (Heteroptera Pentatomidae).
Ectobius tamaninii Galvagni, 1972 (Orthoptera).
Reteporella tamaninii Antolini, Braga & Finotti, 1980 (Bryozoa).
Odontoscelis tamaninii Rizzotti-Vlach, 1981 (Heteroptera Scutelleridae).
Liviopsallus n. gen. *tamaninii* Carapezza, 1982 (Heteroptera Miridae).
Spanioza tamanini Conci,1992 (Homoptera Psylloidea).

Questa lista probabilmente non è completa.

5. L'UOMO - Per finire, un cenno di Tamanini "uomo".

Onesto fino allo scrupolo. Di una squisita cortesia, era sempre disponibile a dare collaborazione al prossimo, con notevole sacrificio di tempo e fatica. Di carattere schivo, tanto da apparire talora quasi timido, rifuggiva da riconoscimenti ed onori. Era molto coerente nelle sue idee, difficili da modificare.

Non aveva nemici ed era stimato e benvoluto da tutti. La sua dipartita sollevò unanime cordoglio nella città di Rovereto e la stampa locale lo ricordò ampiamente; ad esempio il quotidiano "L'Adige" del 5 Aprile 1997 gli dedicò un articolo con titolo su sei colonne.

A noi che gli fummo vicini, con comunanza d'intenti, per moltissimi anni nell'impegno scientifico, lascia soprattutto l'incancellabile struggente ricordo della sua bontà e della sua attività.

6. RICONOSCIMENTI E RIFERIMENTI BIO-BIBLIOGRAFICI, - Per onorarne la memoria, tra il resto, furono dedicati a Livio Tamanini due poderosi volumi:

- Il Supplemento al vol. XXI (Serie IV), 1997, di 331 pagine del "Naturalista Siciliano", organo della Società Siciliana di Scienze Naturali, contenente un'imponente lavoro del Prof. A. Carapezza sugli Eterotteri della Tunisia;

- il vol. VIIII, B (Serie VI), 1998 degli "Atti dell'Accademia Roveretana degli Agiati", di ben 358 pagine, contenente in buona parte lavori di suoi allievi o estimatori.

La commemorazione ufficiale del Nostro fu tenuta a Firenze, nell'Assemblea plenaria dell'Accademia Nazionale Italiana di Entomologia, dall'Accademico Ordinario C. Conci il 27 novembre 1998.

Altri riferimenti bio-bibliografici sono i seguenti:

CONCI C., 1983 - Livio Tamanini festeggiando i suoi 60 anni di lavoro al Museo Civico di Rovereto - 85ª Pubblicazione della Società Museo Civico di Rovereto: 1-32, 1 ritratto e lista dei lavori.

MANFRINI T. & MIORELLI M., 1992 - Roveretani in controluce - Livio Tamanini gli insetti - Manfrini Arti Grafiche, Calliano: 169-171, 1 fig.

ANONIMO, 1997 : Bollettino della Società entomologica italiana, 129: 93.

COLOMBO V., 1997 - L'uomo che studiava gli insetti - L'Adige, Trento, 5 aprile: 36, titolo su 6 colonne, 2 figg.

N.F., 1997 - Una vita per il museo - Alto Adige, Trento, 5 aprile: 29, 1 ritratto.

GALVAGNI A., 1998 - A Livio Tamanini, naturalista ed entomologo insigne (1907-1997) - Atti dell'Accademia Roveretana degli Agiati, Rovereto, ser. VII, 8, B: 7-27, 1 ritratto ed elenco di 172 pubblicazioni.

MARTINELLI A., in stampa - Catalogo dei tipi delle collezioni di Coleotteri ed Emitteri Eterotteri di Livio Tamanini - Annali Musei civici di Rovereto.

CONCI C., in stampa - Livio Tamanini (1907-1997) - Atti Accademia Nazionale Italiana di Entomologia, Rendiconti.

7. BIBLIOGRAFIA DI LIVIO TAMANINI

7a. Lavori originali, in ordine cronologico

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2. 1936 - Descrizione di un nuovo *Bythinus* per il Trentino - 62ª Pubblicazione della Società Museo Civico di Rovereto: 11 pp., 7 figg.
3. 1937 - Nota sull'*Orotrechus Stephani* Müll. sbsp. *roboretanus* Müll. e descrizione del maschio - Studi trentini di Scienze naturali, 18: 79-84, 7 figg.
4. 1940 - Nota sul *Bythinus Erichsoni* K., sue varietà e descrizione di una nuova specie (Coleotteri pselafidi) - 64ª Pubblicazione della Società Museo Civico di Rovereto, 16 pp., 11 figg.
5. 1946 - Variazioni di colore del *Gerris lacustris* L. (Hemiptera Heteroptera) - Bollettino della Società entomologica italiana, 76: 15-16.
6. 1946 - Contributo alla corologia degli emitteri eterotteri dell'Italia Centro-Meridionale - Bollettino dell'Associazione Romana di Entomologia, 1 (2): 9-13.
7. 1946 - Note corologiche sugli Emitteri Eterotteri della Venezia Tridentina. I. Emitteri acquatici (Corixoidea, Notonectoidea, Gerroidea) - 68ª Pubblicazione della Società Museo Civico di Rovereto, 7-16, 5 figg.
8. 1946 - Una nuova *Velia* dell'Algeria (Hemiptera-Heteroptera) - Bollettino della Società entomologica italiana, 76 (7-8): 57-58, 6 figg.
9. 1947 - Contributo ad una revisione del genere *Velia* Latr. e descrizione di alcune specie nuove (Hemiptera Heteroptera, Veliidae) - Memorie della Società entomologica italiana, 26: 17-74, 149 figg.
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26. 1954 - *Velia Lindbergi* n. sp. e *V. maderensis* Noualhier (Hem. Het. Veliidae). Resultati entomologici della spedizione finlandese alle Canarie. 5 - Commentationes biologicae, Helsingfors, 14 (5): 1-7, 27 figg.
27. 1954 - Valore tassonomico degli organi genitali nel genere *Scaphosoma* e descrizione di una nuova specie (Coleoptera, Scaphidiidae) - Bollettino della Società entomologica italiana, 84: 85-89, 13 figg.
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55. 1959 - Un nuovo *Carpocoris* dell'Asia orientale (Heteroptera, Pentatomidae) - Annali del Museo civico di Storia naturale di Genova, 71: 34-40, 10 figg.
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Inoltre, dal 1938 al 1940 nel periodico "Didattica", pubblicò mensilmente articoli sui "Programmi per la Classe III e per la Classe IV".

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Mem. Soc. entomol. ital., 77: 27-41 *31 marzo 1999*

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Stefano Lodovico Straneo (6.VI.1902 - 9.XII.1997)

Riassunto - Viene qui ricordata la figura di Stefano Lodovico Straneo, famoso specialista di Coleotteri Carabidi. Viene riportato l'elenco dei suoi 273 lavori entomologici.

Abstract - *Stefano Lodovico Straneo (6.VI.1902-9.XII.1997).*
The figure of Stefano Lodovico Straneo, famous specialist of Coleoptera Carabidae, is here recalled. The list of his 273 entomological publications is reported.

Key words: Stefano Lodovico Straneo, commemoration.

Stefano Lodovico Straneo, il decano degli entomologi italiani, ci ha lasciati. Indotti dall'affetto che ci legava a lui avevamo finito col rimuovere il pensiero che questo evento ineluttabile avrebbe dovuto prima o poi verificarsi: le leggi naturali purtroppo non ammettono eccezioni. La scomparsa di Stefano Lodovico Straneo è una gravissima perdita per l'entomologia italiana e mondiale. Chi aveva avuto, come noi, la fortuna di conoscerlo da molti anni e di godere della sua amicizia può essere testimone delle sue altissime qualità non solo come specialista di Carabidi, perchè queste sono ben visibili attraverso il rigore scientifico delle sue numerosissime pubblicazioni, ma anche come uomo dotato di grande sensibilità.

Stefano Lodovico Straneo era di indole schietta e severa, ma quest'ultimo aspetto del suo carattere si era attenuato negli anni della vecchiaia. Egli univa a una vasta cultura un comportamento modesto e schivo, che non poteva non sorprendere chi lo incontrava per la prima volta, avvicinandosi a lui un po' intimidito dall'altissima statura dell'entomologo. Malgrado gli anni avanzassero inesorabilmente, nel comportamento e nell'aspetto fisico egli dava l'impressione di un uomo molto più giovane della sua età anagrafica, e discutere con lui, non solo di entomologia, ma di musica classica (la sua altra grande passione), di politica e di casi della vita era sempre un'interessante esperienza dello spirito.

Ci mancheranno i frequenti incontri conviviali con lui e sua moglie, seguiti immancabilmente da pomeriggi carichi di stimoli culturali, durante i quali quasi sempre una parte del tempo era dedicato all'ascolto di opere liriche in videoregistrazione o in videodisco, di cui Stefano Lodovico Straneo possedeva un'importante raccolta. Soprattutto la musica wagneriana lo coinvolgeva e lo entusiasmava: è indimenticabile il ricordo di un pomeriggio nella sua villa di Selvino, una quindicina di anni fa - si era ai primi anni della nostra conoscenza - quando, in una registrazione del "Tristano e Isotta", le straordinarie capacità vocali del tenore lo commossero fino alle lacrime.

Come entomologo non era un professionista, anche se poteva essere considerato la massima autorità per quanto riguarda la sistematica degli Pterostichini mondiali. Laureato in ingegneria, egli raggiunse anche nel suo campo di specializzazione professio-

Fig. 1. Stefano Lodovico Straneo fotografato nella sua casa a Milano pochi anni prima della morte.

nale una grande notorietà come autore di apprezzati libri di testo ancora in uso negli Istituti tecnici industriali, al cui continuo aggiornamento lavorò fino agli ultimi giorni della sua lunga vita.

Stefano Lodovico Straneo era nato a Torino il 6 giugno 1902, unico figlio maschio di una famiglia nobile e benestante. Il padre, Paolo, aveva studiato al Politecnico di Zurigo ed era stato compagno di Albert Einstein, col quale aveva anche lavorato. La famiglia Straneo possedeva due aziende, delle quali Stefano Lodovico avrebbe dovuto occuparsi, ma che, per la situazione finanziaria generale nel 1925 - anno in cui egli giunse a laurearsi in ingegneria all'Università di Roma - dovettero essere liquidate ed egli cercò lavoro come ingegnere civile, occupando intanto un posto di assistente di Fisica Tecnica presso quell'Università.

Come hobby coltivava già l'entomologia: infatti allevava farfalle sicuramente prima di laurearsi e forse addirittura prima di iniziare gli studi universitari. L'altra sua grande passione era lo studio del violino: egli infatti, dopo aver studiato con Corti, formò un quartetto fisso familiare (tre archi e un pianoforte) cimentandosi anche in concerti pubblici.

Nel 1933 sposò Maria Birindelli e iniziò l'attività come professore di istituto industriale a Chieti. Da lì fu trasferito prima a L'Aquila (1934), dove gli nacque il primo

Fig. 2. Straneo con la moglie Maria nel 1985.

figlio (Paolo), quindi a Parma, come Direttore d'istituto, dove rimase per molti anni e dove gli nacquero altri due figli (Renato e Giuliana). Nell'immediato dopoguerra (1947) fu trasferito a Gallarate, sede che egli scelse per la vicinanza a Milano, dove si trovava la casa editrice Principato, con cui collaborava.

A Gallarate occupò la posizione di preside dell'Istituto Industriale "Andrea Ponti", consolidandone lo sviluppo e istituendo anche, per la prima volta in Italia, l'indirizzo tessile, che raggiunse grazie a lui livelli notevoli. Nel 1962 lasciò Gallarate per venire a dirigere l'Istituto "Luigi Settembrini" a Milano. Fu preside di questo istituto fino al 1972, anno in cui andò in pensione. Si trasferì quindi a Pavia ed ebbe da quel momento più tempo per dedicarsi alla stesura dei suoi libri di testo e allo studio degli Pterostichini mondiali.

Tornò a Milano nel 1981 e da quell'anno iniziò ad avere rapporti sempre più stretti col Museo di Storia Naturale di questa città, fino a prendere, nel 1990, la decisione di cedere a questo museo la sua importantissima collezione di Pterostichini mondiali, ricca di oltre 15.000 esemplari, fra cui materiale tipico di oltre 1300 taxa, in gran parte da lui stesso descritti.

La collezione, che olre agli Pterostichini comprende circa 250 specie del genere

Fig. 3. Straneo al Congresso Internazionale di Entomologia a Firenze (agosto 1996) a colloquio con Augusto Vigna Taglianti, attuale Presidente della Società Entomologica Italiana. Dietro di loro, in mezzo, George Ball, il decano dei carabidologi nord-americani.

Agra e una piccola ma interessante rappresentanza di Panageini mondiali, fu ceduta, a lotti, fra il 1990 e il 1994, ed egli potè continuare a disporne liberamente per i suoi studi, producendo ancora alcuni importanti lavori di entomologia sistematica, fino a tre anni prima dalla sua morte, quando, provato ormai da troppi disturbi della vecchiaia, decise a malincuore di porre fine alla sua lunga e splendida attività entomologica.

Nel 1996 fu invitato al XX Congresso Internazionale di Entomologia a Firenze, e, nell'ambito del Simposio carabidologico, fu ufficialmente festeggiato dagli specialisti mondiali, che, riconoscenti, vedevano in lui un grande maestro. Crediamo che una conclusione più bella, per una vita dedicata agli insetti, egli non potesse aspettarsi.

Straneo come entomologo si pone certamente ai massimi livelli della Carabidologia mondiale, anzi, si può addirittura dire che il contributo che ha dato allo studio della sottofamiglia Pterostichinae è uno dei più importanti in tutta la storia dell'entomologia.

Il numero totale dei suoi lavori scientifici assomma a 237, molti dei quali di impostazione monografica. Ma al di là delle cifre, è impressionante la quantità di materiale da lui studiato, descrivendo le specie ancora inedite e riportando i dati geonemici delle altre. In numerosissimi dei suoi lavori, infatti, vengono precisate le nuove località di alcune specie, in modo tale da fare conoscere meglio il loro areale. E, al di là delle citazioni pubblicate da lui personalmente, bisogna ricordare che in moltissimi esempi ha determinato il materiale di Pterostichini africani citato poi da Basilewsky, con cui ha mantenuto per numerosissimi anni un rapporto di cordialissima collaborazione.

E Basilewsky è stato solo uno dei molti specialisti con cui Straneo ha intrattenuto rapporti di collaborazione o addirittura di amicizia; data la sua lunghissima attività entomologica, infatti, Straneo ha avuto la possibilità di conoscere tutti i più famosi carabidologi del secolo, da Jeannel a Schatzmayr, da Müller a Négre, da Ball a Kryzhanovskij. Con tutti questi i rapporti erano sempre stati estremamente cordiali, improntati al massimo rispetto reciproco anche quando le visioni sulla sistematica non coincidevano, del tutto privi di quelle tensioni che hanno caratterizzato tante contrapposizioni "di scuola".

Come specialista il suo campo di elezione sono stati sicuramente i Carabidi Pterostichini, ma ha fornito importanti contributi anche allo studio dei generi *Agra, Calleida, Brachygnathus, Catascopus*, per non citare che i principali.

La sua traccia resterà certamente per sempre in tutti questi campi e la sua collezione, fortunatamente rimasta in un museo notoriamente molto aperto agli studiosi e che fornisce le migliori garanzie di conservazione nel tempo, sarà sempre indispensabile per ogni studioso di Carabidi, al pari delle più "classiche" come quelle di Oberthür, di Dejean, di Tschitscherine, ecc.

Riportiamo qui la bibliografia entomologica completa di Straneo. L'elenco era stato compilato e mantenuto aggiornato in buona parte da lui stesso e la numerazione è anche quella sua originale. Nonostante alcune piccole inesattezze (qualche numero "bis" e piccole inversioni di data) abbiamo preferito non modificarla, in modo da mantenere una corrispondenza tra la numerazione qui riportata e quella autografa che si ritrova sui suoi estratti originali.

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Mem. Soc. entomol. ital., 77: 43-103 *31 marzo 1999*

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Antonio Giordani Soika (1913-1997): la produzione scientifica

Riassunto - Vengono qui ricordate la vita e l'attività entomologica di Antonio Giordani Soika, famoso specialista di Imenotteri ed ex direttore del Museo di Storia Naturale di Venezia. Viene riportato l'elenco delle sue 323 pubblicazioni scientifiche e dei taxa da lui desctitti.

Abstract - *Antonio Giordani Soika (1913-1997): the scientific production*
The life and entomological activity of Antonio Giordani Soika, famous specialist of Hymenoptera and former director of the Venice Natural History Museum, are here recalled. The list of his 323 scientific publications and of the taxa described by him is reported.

Key words: Antonio Giordani Soika, commemoration.

Il 2 Gennaio 1997 è deceduto a Venezia il Professor Antonio Giordani Soika, per oltre un trentennio direttore del Museo civico di Storia Naturale di Venezia ed una delle personalità più conosciute e stimate nel campo scientifico nazionale ed internazionale.

Nato a Venezia il 9 Maggio 1913, fin da giovanissimo dimostrò grande interesse per le scienze naturali. Dopo essersi laureato in Medicina e Chirurgia, si dedicò dapprima alla professione medica, anche in ambito ospedaliero; nell'immediato dopoguerra fu chiamato a dirigere il Museo civico di Storia naturale di Venezia, incarico che mantenne sino al 1978; fu anche libero docente di Zoologia all'Università di Modena, professore di Anatomia artistica all'Accademia di Belle Arti di Venezia e ricoprì numerose altre cariche scientifiche e direttive; dal 1976 al 1996 fu Consigliere della Società Entomologica Italiana, della quale era socio dal lontano 1930.

Naturalista eclettico, "giramondo scientifico, biologo, storico ed etnologo di vaglia" (Sacchi, in litt.), museologo che non perse mai l'entusiasmo per l'osservazione e lo studio degli animali in natura, fu anche ecologo attento: si dedicò all'indagine degli ambienti e della fauna della Laguna di Venezia, dell'intermareale, delle spiagge, delle dune, dei deserti, delle sorgenti termali, dei greti fluviali. Nel 1944 si occupava già di biocenologia, ed identificava le sue "olocenosi" con due specie caratteristiche, una vegetale ed una animale. È impossibile, in così in breve spazio, anche soltanto nominare tutte le discipline scientifiche, pure o applicate, di cui si occupò nella Sua lunga carriera: discipline che spaziano dall'ecologia umana alla biogeografia, dalla biologia marina all'ittiopatologia, dalla climatologia alla mareografia (Ratti, in litt.).

La sua enorme produzione scientifica, costituita da oltre 320 pubblicazioni, è però principalmente dedicata all'entomologia, ed in particolare agli Imenotteri Vespoidei, di cui era considerato uno dei massimi esperti mondiali. Alcune aride cifre possono dare un'idea della sua incredibile attività di tassonomo: in oltre 65 anni di ininterrotto lavoro descrisse ben 105 nuovi generi o sottogeneri e 1465 nuove specie, sottospecie o varietà, soprattutto di Imenotteri, ma anche di Ditteri, Coleotteri, Crostacei Anfipodi ed Isopodi.

Al Museo di Venezia, dove è depositata la sua collezione entomologica, rimase strettamente legato sino a quando le precarie condizioni di salute glielo consentirono, continuando a

Fig. 1. Antonio Giordani Soika a Londra in occasione di una delle sue frequenti visite al British Museum.

frequentare il piccolo studio-laboratorio nel quale aveva operato per circa mezzo secolo.

Con Antonio Giordani Soika scompare una delle ultime personalità in grado di operare con competenza e capacità di sintesi in campi così vari delle scienze naturali: una figura di studioso moderno, spesso d'avanguardia, nel cui eclettismo si riflettono purtuttavia gli echi di un'altra epoca ed il fascino dei grandi naturalisti del passato.

ELENCO DELLE PUBBLICAZIONI

Sono di seguito riportate in ordine cronologico tutte le pubblicazioni edite, con esclusione degli articoli pubblicati su quotidiani o comunque su stampa d'informazione non specializzata. La numerazione dei lavori è stata utilizzata nel successivo elenco dei nuovi taxa descritti.

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264 - Revisione delle specie etiopiche e malgasce della sottofamiglia Discoeliinae (Hym.). *Boll. Mus. civ. St. nat. Venezia* 30 1979: 19-65, ill.
265 - Eumenidi raccolti nel Niger, Mali e Sahara centrale da K. Guichard. *Boll. Mus. civ. St. nat. Venezia* 30 1979: 235-246, ill.
266 - Eumenidi paleartici nuovi o poco noti. Notulae vespidologicae-XL. *Boll. Mus. civ. St. nat. Venezia* 30 1979: 247-263, ill.

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1980

268 - Sulla presenza nel Golfo del Messico di un Dittero Efidride di tipo paleosteppico mediterraneo. *Atti V Conv. Gr. Gadio*, Varese 1980, 113-116, ill.

269 - Micromigrazioni nella bassa atmosfera di insetti litoripari a Volano del Delta padano ed a El Goléa, nel Sahara centrale (Nota preliminare). *Atti V Conv. Gr. Gadio*, Varese 1980, 90-112.

1981

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1982

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279 - Revisione delle specie orientali del genere *Antepipona* Sauss. (Hym. Vespoidea). *Boll. Mus. civ. St. nat. Venezia* 32 (1981) 1982: 205-257, ill.

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284 - Eumenidi raccolti sui *Tamarix* nel territorio di Biskra (Hym. Vesp.). Contributi alla conoscenza della fauna dei *Tamarix* nel Sahara algerino, 1. *Boll. Mus. civ. St. nat. Venezia* 33 (1982) 1983: 199-202.

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1984

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1985

287 - Revisione delle specie afrotropicali del genere *Antepipona* Sauss. e generi affini (Hym. Vesp.). *Boll. Mus. civ. St. nat. Venezia* 34 (1983) 1985: 29-162, ill.

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1986

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1987

294 - Nuovo contributo alla conoscenza degli Eumenidi afrotropicali (Hymenoptera). *Boll. Mus. civ. St. nat. Venezia* 36 (1985) 1987: 117-214, ill.

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1988

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1989

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1990

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304 - La fertilizzazione organica del terreno. Quaderni di documentazione ambientale, 6. *Arsenale*, Venezia 1990, 38 pp., ill.

1991

305 - Eumenidi raccolti in Indonesia da G. Osella e J. Klapperich. *Boll. Mus. Civ. Stor. Nat. Verona* 15 (1988) 1991: 163-166, ill.

306 - Vespoidei raccolti da L. A. Nilsson nel Madagascar, con una tabella per la determinazione delle *Ropalidia* del Madagascar (Hymenoptera Vespoidea). *Lavori Soc. venez. Sc. nat.* 16 1991: 79-90, ill.

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1992

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310 - La Laguna, Tomo I: Ambiente fauna e flora. In: Itinerari culturali a Venezia e nel Veneziano, III. *Corbo & Fiore*, Venezia 1992, 413 pp.

1993

311 - Noona Dan Expedition 1961-62: Hymenoptera, Eumenidae. *Lavori Soc. venez. Sc. nat.* 18 1993: 19-24.
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314 - Di alcuni nuovi Eumenidi della regione orientale (Hym. Vespoidea). *Boll. Mus. civ. St. nat. Venezia* 42 (1991) 1993: 151-163, ill.

1994

315 - Ricerche sistematiche su alcuni generi di Eumenidi della Regione orientale e della Papuasia (Hymenoptera, Vespoidea). *Ann. Mus. civ. St. nat. "G. Doria" Genova* 90 1994: 1-348.
316 - Nota sulle specie orientali del genere *Rhynchium* Spinola (Hymenoptera, Eumenidae). *Lavori Soc. venez. Sc. Nat.* 19 1994: 37-52.

1995

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318 - Nuovi Eumenidi della Regione orientale e della Papuasia. *Boll. Mus. civ. St. nat. Venezia* 44 (1993) 1995: 91-99.
319 - Hymenoptera Vespoidea (in collab. con Borsato W.). In: Minelli A., Ruffo S. & La Posta S. (eds.), Checklist delle specie della fauna italiana, 103. *Calderini*, Bologna 1995.
320 - Nota sulla distruzione del popolamento entomologico nel territorio di Venezia. *Quad. Staz. Ecol. civ. Mus. St. nat. Ferrara* 9 1995: 391-392.

1996

321 - Notulae vespidologicae XLVIII. Descrizione di due nuovi Eumenidi afrotropicali. *Boll. Mus. civ. St. nat. Venezia* 45 (1994) 1996: 33-34.
322 - Eumenidi orientali e papuani nuovi o poco noti. *Boll. Mus. civ. St. nat. Venezia* 45 (1994) 1996: 35-46, ill.
323 - Distribuzione geografica dei Vespidi solitari nel Mediterraneo. *Atti 4° Coloquio su Approcci metodologici per la definizione dell'ambiente fisico e biologico mediterraneo*. Castro Marina, 17-19 novembre 1992. *Orantes*, Lecce, 1996: 5-27.

Elenco dei nuovi taxa descritti da A. Giordani Soika

I nuovi taxa descritti da Giordani Soika sono elencati in ordine sistematico, per classe, ordine e famiglia; all'interno di ciascuna famiglia generi/sottogeneri e, di seguito, specie/categorie infraspecifiche sono elencati rispettivamente in ordine alfabetico secon-

do la nomenclatura originale ed utilizzando il seguente formato: nuovo taxon (in **neretto** se considerato valido, in *corsivo* se considerato sinonimo); genere (eventuale sottogenere) nel quale il taxon è stato originariamente descritto; Autore/i; anno di pubblicazione; (numero di riferimento all'elenco delle pubblicazioni di Giordani Soika); pagina; (patria); eventuali note; [posizione tassonomica attuale, se variata].

CRUSTACEA ISOPODA

Fam. **Tylidae**

maindroni Tylos Giordani Soika, 1954 (125): 76 (Golfo di Oman)
marcuzzii Tylos Giordani Soika, 1954 (125): 79 (Venezuela)
sardous **adriaticus** Tylos Giordani Soika, 1956 (134): 14 (Coste Adriatiche). Nota: Tylos ponticus adriaticus secondo Giordani Soika, 1972 (226). Questa sottospecie non è riportata, nemmeno come sinonimo, nella Checklist delle specie italiane di Argano et al. (1995)
sardous **arcangelii** Tylos Giordani Soika, 1954 (125): 74 (Cirenaica). Nota: nom. nov. per Tylos latreillii Arcangeli, 1938 nec Audouin & Savigny, 1826. Tylos sardous Arcangeli, 1938 è attualmente considerato sinonimo di T. europaeus Arcangeli, 1938
sardous **canariensis** Tylos Giordani Soika, 1954 (125): 74 (Is. Canarie). Nota: Tylos sardous Arcangeli, 1938 è attualmente considerato sinonimo di T. europaeus Arcangeli, 1938

CRUSTACEA AMPHIPODA

Fam. **Eusiridae**

chiereghinii Apherusa Giordani Soika, 1950 (109): 182 (Laguna di Venezia)

Fam. **Leucothoidae**

venetiarum Leucothoe Giordani Soika, 1950 (109): 189 (Laguna di Venezia)

INSECTA COLEOPTERA

Fam. **Apionidae**

schatzmayri Corimalia Giordani Soika, 1937 (042): 216 (Palestina)
torretassoi Corimalia Giordani Soika, 1937 (042): 221 (Palestina)

INSECTA DIPTERA

Fam. **Canacidae**

Dynomiella Giordani Soika, 1956 (138): 130. Tipo: Dynomiella arenicola Giordani Soika, 1956. Syn. di Canace Haliday, 1839
arenicola Dynomiella Giordani Soika, 1956 (138): 130 (SW Africa). Syn. di Canace stuckenbergi Wirth, 1956

Fam. **Ephydridae**

Allotrichoma (**Eremotrichoma**) Giordani Soika, 1956 (137): 104. Tipo: Elephantinosoma perspiciendum Becker, 1903
Isgamera Giordani Soika, 1956 (138): 129. Tipo: Isgamera globicornis Giordani Soika, 1956

aurantiacus Oedenops Giordani Soika, 1956 (138): 123 (Madagascar)
azurescens Polytrichophora Giordani Soika, 1956 (132): 503 (Zaire)
basilewskyi Paralimna Giordani Soika, 1956 (132): 497 (Zaire)
bellicosum Allotrichoma Giordani Soika, 1956 (137): 103 (Marocco). Syn. di Allotrichoma quadripectinatum (Becker, 1903)
bicolorithorax Hydrellia Giordani Soika, 1956 (138): 127 (Ruanda)

brunneifacies Paralimna Giordani Soika, 1956 (138): 123 (Madagascar). Syn. di Paralimna (Oedenopiforma) madecassa Giordani Soika, 1956
brunneipleura Hydrellia Giordani Soika, 1956 (138): 127 (Ruanda)
congensis Hydrellia Giordani Soika, 1956 (132): 505 (Ruanda)
cressoni Ochtera [sic] (Haplochila) Giordani Soika, 1956 (138): 128 (Zaire) [Ochthera (Haplochila) cressoni]
cupreofasciata Pelina Giordani Soika, 1956 (138): 126 (Ruanda)
dimidiaticornis Notiphila Giordani Soika, 1956 (132): 500 (Zaire & Ruanda) [Notiphila (Agrolimna) dimidiaticornis]
globicornis Isgamera Giordani Soika, 1956 (138): 129 (Madagascar)
hova Actocetor Giordani Soika, 1956 (138): 126 (Madagascar)
invisa Paralimna Giordani Soika, 1956 (138): 124 (Zaire)
lineata Notiphila (Agrolimna) Giordani Soika, 1956 (138): 125 (Congo Belga)
lunicornis Notiphila Giordani Soika, 1956 (138): 124 (Ruanda)
madecassa Paralimna Giordani Soika, 1956 (138): 123 (Madagascar) [Paralimna (Oedenopiforma) madecassa]
magnifacies Ceropsilopa Giordani Soika, 1956 (138): 126 (Zaire)
monstruosa Paralimna Giordani Soika, 1956 (132): 491 (Zaire)
multicolor Ephydra (Setacera) Giordani Soika, 1956 (138): 128 (Katanga) [Setacera multicolor]
nigroquadrimaculata Hydrellia Giordani Soika, 1956 (138): 127 (Zaire)
notiphiloides Hydrellia Giordani Soika, 1956 (138): 128 (Zaire) nec Hydrellia notiphiloides Cresson, 1924. Rimpiazzato da Hydrellia soikai Cogan, 1980
pluvialis [sic] Allotrichoma Giordani Soika, 1956 (138): 126 (Congo Belga) [Allotrichoma pluviale]
pseudobscuricornis Notiphila Giordani Soika, 1956 (138): 124 (Ruanda)
pseudodimidiaticornis Notiphila Giordani Soika, 1956 (138): 125 (Ruanda)
saharae Hydrellia Giordani Soika, 1956 (137): 109 (Hoggar)
sponsa Paralimna Giordani Soika, 1956 (132): 492 (Zaire)
strenzkei Ephydra Giordani Soika, 1960 (161): 456 (Germania)
subcornuta Notiphila Giordani Soika, 1956 (132): 501 (Ruanda?). Syn. di Notiphila (Agrolimna) obscuricornis Loew, 1862
subguttata **aurulenta** Scatella Giordani Soika, 1956 (137): 112 (Marocco)
tuareg Allotrichoma Giordani Soika, 1956 (137): 102 (Hoggar)
vidua Paralimna (Phaiosterna) Giordani Soika, 1956 (138): 124 (Zaire). Syn. di Paralimna (Paralimna) lineata de Meijere, 1908
villosissima Parydra Giordani Soika, 1956 (138): 128 (Zaire)

INSECTA HYMENOPTERA

Fam. **Bethylidae**

masii Pristocera Giordani Soika, 1933 (011): 99 (Italia)

Fam. **Eumenidae**

Acarepipona Giordani Soika, 1985 (288): 192. Tipo: Acarepipona insolita Giordani Soika, 1985 (= Odynerus (Rhynchium) pervigilans Giordani Soika, 1944)
Acarodynerus Giordani Soika, 1961 (176): 146. Tipo: Odynerus clypeatus Saussure, 1853
Afrepipona Giordani Soika, 1965 (192): 46. Tipo: Odynerus macrocephalus Gribodo, 1894
Afrogamma Giordani Soika, 1987 (294): 204. Tipo: Afrogamma gibbosum Giordani Soika, 1987
Afroxanthodynerus Giordani Soika, 1979 (265): 243. Tipo: Afroxanthodynerus nigeriensis Giordani Soika, 1979

Alastor (**Alastorellus**) Giordani Soika, 1991 (307): 51. Tipo: Alastor stevensoni Schulthess, 1898
Alfieria Giordani Soika, 1934 (024): 436. Tipo: Eumenes anomalus Zavattari, 1909
Allepipona Giordani Soika, 1987 (287): 177. Tipo: Odynerus erythrospilus Cameron, 1905
Allepipona (**Allepipona**) Giordani Soika, 1987 (287): 177. Tipo: Odynerus erythrospilus Cameron, 1905
Allepipona (**Cylindrepipona**) Giordani Soika, 1987 (287): 178. Tipo: Odynerus emortualis Saussure, 1853
Antamenes Giordani Soika, 1957 (146): 214. Tipo: Odynerus flavocinctus Smith, 1857 (=Odynerus vernalis Saussure, 1853)
Antamenes (**Australochilus**) Giordani Soika, 1973 (230): 53. Tipo: Odynerus citreocinctus Saussure, 1867. Nota: il sottogenere era già stato descritto nel 1961 (176): 184 ma non era stato designato il tipo
Apodynerus Giordani Soika, 1993 (314): 155. Tipo: Odynerus troglodytes Saussure, 1856. Nota: Genere citato senza descrizione da Gusenleitner, 1988, descritto da Giordani Soika nel 1993, e successivamente ridescritto (come n. gen.) da Giordani Soika, 1994 (315): 206
Archancistrocerus Giordani Soika, 1986 (293): 143. Tipo: Archancistrocerus diffinis Giordani Soika, 1986
Aruodynerus Giordani Soika, 1993 (313): 137. Tipo: Odynerus aruanus Gribodo, 1891. Nota: ridescritto come nuovo da Giordani Soika, 1994 (315): 287)
Australodynerus Giordani Soika, 1961 (176): 114. Tipo: Odynerus pusillus Saussure, 1856
Australozethus Giordani Soika, 1969 (206): 29. Tipo: Australozethus tasmaniensis Giordani Soika, 1969
Bidentodynerus Giordani Soika, 1977 (258): 117. Tipo: Odynerus bicolor Saussure, 1855. Syn di Pseudabispa van der Vecht, 1960
Brachymenes Giordani Soika, 1961 (174): 243. Tipo: Eumenes wagnerianus Saussure, 1875
Carinstrocerus Giordani Soika, 1989 (300): 43. Tipo: Ancistrocerus dolorans Giordani Soika, 1935
Convextrocerus Giordani Soika, 1989 (300): 46. Tipo: Ancistrocerus nitidissimus Giordani Soika, 1936
Cyphomenes Giordani Soika, 1978 (262): 210. Tipo: Eumenes infernalis Saussure, 1875
Cyrtalastor Giordani Soika, 1989 (300): 35. Tipo: Cyrtalastor moruloides Giordani Soika, 1989
Cyrteumenes Giordani Soika, 1991 (306): 80. Tipo: Labus seyrigi Giordani Soika, 1934
Diemodynerus Giordani Soika, 1961 (176): 141. Tipo: Odynerus diemensis Saussure, 1853
Elisella Giordani Soika, 1974 (242): 132. Tipo: Elisella linae Giordani Soika, 1974
Erodynerus Giordani Soika, 1993 (314): 157. Tipo: Odynerus maculipennis Smith, 1858). Nota: ridescritto (come n. gen.) da Giordani Soika, 1994 (315): 202
Estiella Giordani Soika, 1992 (309): 42. Tipo: Estiella pretiosa Giordani Soika, 1992
Eumenes (**Omicroides**) Giordani Soika, 1935 (031): 129. Tipo: Eumenes singularis Smith, 1857 Nota: descritto inizialmente come sottogenere di Eumenes, successivamente trattato come genere da Giordani Soika, 1961 (174): 241 [Omicroides]
Eumenes (**Zeteumenoides**) Giordani Soika, 1972 (224): 110. Tipo: Vespa filiformis Saussure, 1855
Euodynerus (**Incolepipona**) Giordani Soika, 1994 (315): 255. Tipo: Euodynerus convergens Giordani Soika, 1994
Flammodynerus Giordani Soika, 1961 (176): 124. Tipo: Odynerus subalaris Saussure, 1855
Flavoleptus Giordani Soika, 1992 (309): 59. Tipo: Montezumia flavobalteata Cameron, 1903
Gioiella Giordani Soika, 1985 (287): 155. Tipo: Odynerus katonai Schulthess, 1913
Globodynerus Giordani Soika, 1987: (294) 173. Tipo: Globodynerus globosus Giordani Soika, 1987
Hirtocoelius Giordani Soika, 1992 (309): 58. Tipo: Eumenes aureoniger Giordani Soika, 1958
Hypalastoroides (**Cephalastor**) Giordani Soika, 1982 (277) : 40. Tipo: Hypalastoroides depressus Giordani Soika, 1969 (= Odynerus relativus Fox, 1909)

Hypalastoroides **(Larastoroides)** Giordani Soika, 1982 (277): 40. Tipo: Hypalastoroides costaricensis Giordani Soika, 1960

Hypalastoroides **(Ortalastoroides)** Giordani Soika, 1982 (277): 56. Tipo: Alastor singularis Saussure, 1852

Irianmenes Giordani Soika, 1993 (313): 128. Tipo: Pachymenes schneideri Giordani Soika, 1943

Kennetia [sic] Giordani Soika, 1994 (315): 289. Tipo: Odynerus (Lionotus) unifasciatus Schulthess, 1934. Nota: dovrebbe essere emendato in Kennethia, ma in questo caso potrebbero sorgere problemi di omonimia con Kennethia De Dekker, 1979 (Ostracoda) (K.-H. Schmidt, com. pers.)

Laevimenes Giordani Soika, 1978 (262): 11, 359. Tipo: Eumenes laevigatus Bréthes, 1906

Latimenes Giordani Soika, 1992 (309): 54. Tipo: Odynerus latipennis Smith, 1857

Leptomenes Giordani Soika, 1939 (049): 87. Tipo: Pachymenes congensis Bequaert, 1918 (= Odynerus eumenoides Smith, 1857)

Leptomenes **(Eumenidiopsis)** Giordani Soika, 1939 (049): 87. Tipo: Leptomenes subtilis Giordani Soika, 1939. Nota: descritto originariamente come sottogenere di Leptomenes, successivamente trattato come genere da VAN DER VECHT & FISCHER, 1972 [Eumenidiopsis]

Leptomenoides Giordani Soika, 1961 (176): 171. Tipo: Leptomenoides placidior Giordani Soika, 1961

Leptomicrodynerus Giordani Soika, 1985 (289): 37. Tipo: Leptomicrodynerus tieshengi Giordani Soika, 1985

Leptopterocheilus Giordani Soika, 1952 (120): 262. Tipo: Pterochilus linguarius Saunders, 1905. Syn. di Labochilus Blüthgen, 1939

Lissepipona Giordani Soika, 1994 (315): 285. Tipo: Lissepipona variabilis Giordani Soika, 1994

Lissodynerus Giordani Soika, 1993 (313): 135. Tipo: Odynerus septemfasciatus Smith, 1857. = Lissodynerus Giordani Soika, 1973 (233): 119 (nomen nudum). Nota: ridescritto (come n. gen.) da Giordani Soika, 1994 (315): 301

Malayepipona Giordani Soika, 1993 (314): 151. Tipo: Malayepipona pagdeni Giordani Soika, 1993

Minixi Giordani Soika, 1978 (262): 367. Tipo: Eumenes mexicanus Saussure, 1857

Nestocoelius Giordani Soika, 1992 (309): 56. Tipo: Odynerus petiolatus Smith, 1859

Nirtenia Giordani Soika, 1989 (300): 25. Tipo: Nirtenia propodealis Giordani Soika, 1989

Odynerus **(Afrodynerus)** Giordani Soika, 1934 (023): 26. Tipo: Odynerus (Afrodynerus) monstruosus Giordani Soika, 1934. Descritto originariamente come subg. di Odynerus, è condiderato poi come genere [Afrodynerus]

Odynerus **(Stenodyneroides)** Giordani Soika, 1940 (059): 471. Tipo: Odynerus corvus Meane Waldo, 1915. Nota: inizialmente descritto come sottogenere di Odynerus. Successivamente trattato come genere da Giordani Soika, 1951 (117): 386 [Stenodyneroides]

Omicrabulus Giordani Soika, 1987 (204): 154. Tipo: Labus saganensis Giordani Soika, 1944

Oreumenoides Giordani Soika, 1961 (174): 245. Tipo: Eumenes edwardsii Saussure, 1852

Ovodynerus Giordani Soika, 1985 (287): 130. Tipo: Odynerus capicola Meade Waldo, 1915

Pachycoelius Giordani Soika, 1969 (206): 54. Tipo: Pachycoelius brevicornis Giordani Soika, 1969

Pachyminixi Giordani Soika, 1978 (262): 387. Tipo: Eumenes sumichrasti Saussure, 1875

Parachilus Giordani Soika, 1960 (169): 392. Tipo: Pterochilus capensis Saussure, 1856

Paragayella Giordani Soika, 1974 (241): 99. Tipo: Paragayella richardsi Giordani Soika, 1974. Syn. di Paramasaris Cameron, 1901

Paraleptomenes Giordani Soika, 1970 (215): 79. Tipo: Paraleptomenes nurseanus Giordani Soika, 1970

Paranortonia Giordani Soika, 1941 (065): 154. Tipo: Nortonia polybioides Schulthess, 1904. Nota: omonimo più recente di Paranortonia Bequaert, 1940; rimpiazzato da Stenonartonia [sic] Giordani Soika, 1973 (230): 25

Paravespa **(Gestrodynerus)** Giordani Soika, 1960 (168): 369. Tipo: Rygchium gestroi Magretti, 1884. Nota: ridescritto nel 1961 (171): 444 come n. gen. (tipo: Odynerus gestroi Magretti, 1884). Originariamente descritto come sottogenere di Paravespa Radoszkowski, 1886. Successivamente trattato come genere da Giordani Soika, 1987 (297): 151 [Gestrodynerus]

Pareumenes **(Brachyparmenes)** Giordani Soika, 1987 (294): 201. Tipo: Pareumenes (Brachyparmenes) punctatissimus Giordani Soika, 1987

Pareumenes **(Pseumenes)** Giordani Soika, 1935 (031): 145. Tipo: Eumenes eximius Smith, 1861

Parhypodynerus Giordani Soika, 1973 (233): 110. Tipo: Odynerus pavidus Kohl, 1905. Syn. di Stenodynerus Saussure, 1893

Parifodynerus Giordani Soika, 1961 (176): 167. Tipo: Parifodynerus parificus Giordani Soika, 1961

Phimenes Giordani Soika, 1992 (309): 66. nom. nov. per Phi Saussure, 1855, nec Saussure, 1854

Pirhosigma Giordani Soika, 1978 (262): 229. Tipo: Eumenes simulans Saussure, 1875

Polistepipona Giordani Soika, 1989 (300): 51. Tipo: Pseudepipona polistiformis Giordani Soika, 1950

Postepipona Giordani Soika, 1974 (240): 77. Tipo: Postepipona socotrae Giordani Soika, 1974

Proepipona Giordani Soika, 1977 (260): 126. Tipo: Vespa lateralis Fabricius, 1781

Pseudacaromenes Giordani Soika, 1978 (262): 15. Tipo: Eumenes alfkeni Ducke, 1904

Pseudalastor Giordani Soika, 1961 (176): 131. Tipo: Odynerus concolor Saussure, 1853

Pseudepipona (*Carinodynerus*) Giordani Soika, 1957 (150): 478. Tipo: Odynerus guerinii Saussure, 1853. Syn. di Tricarinodynerus Giordani Soika, 1951

Pseudepipona **(Epiodynerus)** Giordani Soika, 1957 (146): 195. Tipo: Odynerus alecto Lepeletier, 1841. Nota: inizialmente descritto come sottogenere di Pseudepipona Saussure, 1856. Elevato a rango di genere da Giordani Soika, 1971 (222): 78 e successivamente trattato come sottogenere di Antherhynchium Saussure da Giordani Soika, 1986 (292): 74 [Antherhynchium (Epiodynerus)]

Pseudepipona (*Kalliepipona*) Giordani Soika, 1951: 81. Tipo: Odynerus radialis Saussure, 1855. Syn. di Antodynerus Saussure, 1855

Pseudepipona (*Parepipona*) Giordani Soika, 1957 (150): 477. Tipo: Odynerus radialis Saussure, 1855. Syn. di Antodynerus Saussure, 1855

Pseudepipona (*Pseudokalliepipona*) Giordani Soika, 1955 (127): 366. Tipo: Odynerus bellatulus Saussure, 1853. Syn. di Antodynerus Saussure, 1855

Pseudonortonia Giordani Soika, 1936 (034): 268. Tipo: Odynerus difformis Saussure, 1853

Pseudozumia **(Afrozumia)** Giordani Soika, 1987 (294): 140. Tipo: Montezumia bimaculata Meade Waldo, 1911

Pteromenes Giordani Soika, 1960 (169): 407. Tipo: Pterochilus paradisiacus Giordani Soika, 1941

Raphiglossoides Giordani Soika, 1936 (037): 77. Tipo: Raphiglossoides aethiopicus Giordani Soika, 1936

Rugomenes Giordani Soika, 1992 (309): 55. Tipo: Odynerus rugifrons Cameron, 1903

Santamenes Giordani Soika, 1990 (303): 116. Tipo: Eumenes santanna Saussure, 1857

Sphaeromenes Giordani Soika, 1978 (262): 225. Tipo: Sphaeromenes discrepatus Giordani Soika, 1978

Stellepipona Giordani Soika, 1973 (233): 106. Tipo: Odynerus stellenboschensis Cameron, 1905

Stenochilus Giordani Soika, 1987 (294): 135. Tipo: Stenochilus longithorax Giordani Soika, 1987

Stenodyneriellus Giordani Soika, 1961 (176): 71. Tipo: Stenodyneriellus turneriellus Giordani Soika

Stenonartonia [sic] Giordani Soika, 1973 (230): 25. Tipo: Nortonia polybioides Schulthess, 1904. Nota: nom. nov. per Paranortonia Giordani Soika, 1941 nec Bequaert, 1940

Stenosigma Giordani Soika, 1978 (262): 407. Tipo: Eumenes allegrus Zavattari, 1912

Symmorphoides Giordani Soika, 1977 (257): 172. Tipo: Symmorphoides maroccanus Giordani Soika, 1977

Tachyancistrocerus Giordani Soika, 1952 (119): 37. Tipo: Odynerus rhodensis Saussure, 1855

Tachymenes Giordani Soika, 1983 (282): 118. Tipo: Odynerus vulneratus Saussure, 1855
Trachyodynerus Giordani Soika, 1989 (300): 60. Tipo: Trachyodynerus dancaliensis Giordani Soika, 1989
Tricarinodynerus Giordani Soika, 1951 (114): 79. Tipo: Odynerus guerinii Saussure, 1852
Trichodynerus Giordani Soika & Kojima, 1988 (299) : 178. Nota: nomen nudum (VAN DER VECHT & CARPENTER, 1990)
Tricomenes Giordani Soika, 1978 (262): 254. Tipo: Eumenes pilosa Fox, 1899. Syn. di Pirhosigma Giordani Soika, 1978
Tropidodynerus (**Tropidepipona**) Giordani Soika, 1994 (315): 6. Tipo: Odynerus hostis Nurse, 1903
Zethus (**Madecazethus**) Giordani Soika, 1979 (264): 53. Tipo: Labus madecassus Schulthess, 1907

abbreviaticornis Pseudonortonia Giordani Soika, 1941 (069): 246 (Cina meridionale)
abdelkader **pharaonum** Microdynerus Giordani Soika, 1958 (156): 97 (Egitto)
abdominalis Subancistrocerus Giordani Soika, 1994 (315): 41 (Filippine)
aberratica **arabica** Pseudonortonia Giordani Soika, 1957 (150): 476 (Western Aden Protectorate)
abreptus Odynerus (Rhynchium) Giordani Soika, 1934 (017): 371 (Guinea portoghese) [Tricarodynerus abreptus]
abundans Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 48 (Argentina)
acarophilus Acarodynerus Giordani Soika, 1961 (176): 157 (Australia, Queensland)
acarophilus Parancistrocerus Giordani Soika, 1994 (315): 184 (Filippine)
achterbergi Epsilon Giordani Soika, 1994 (315): 279 (Is. Solomon)
achterbergi Eumenes Giordani Soika, 1992 (309): 63 (Sulawesi)
acromum Rhynchium Giordani Soika, 1952 (119): 49 (India occidentale)
acus Eumenes (Eumenes) Giordani Soika, 1935 (031): 126 (Borneo). Syn. di Eumenes multipictus Saussure, 1855
adenensis Ancistrocerus Giordani Soika, 1952 (119): 31 (Aden)
adiacens Euodynerus (Pareuodynerus) Giordani Soika, 1973 (233): 117 (China)
admonitor Omicrabulus Giordani Soika, 1989 (300): 37 (Kenya)
adulescens Odynerus Giordani Soika, 1941 (067): 178 (Madagascar)
adulescentula Pararaphidoglossa Giordani Soika, 1978 (262): 299 (Colombia)
advocatus Pareumenes Giordani Soika, 1944 (089): 159 (S Rhodesia) [Ectopioglossa advocata]
aeger Alastor Giordani Soika, 1983 (282): 103 (S Africa)
aegyptiaca **laeta** Pseudonortonia Giordani Soika, 1989 (301): 34 (Algeria)
aemulus Eustenancistrocerus Giordani Soika, 1952 (119): 35 (Persia sud-occidentale)
aenigmaticum Pirhosigma Giordani Soika, 1978 (262): 250 (Colombia)
aequale Omicron Giordani Soika, 1978 (262): 200 (Messico)
aequale *jucundum* Omicron Giordani Soika, 1978 (262): 202 (Trinidad). Syn. di Omicron aequale Giordani Soika, 1978
aequale *nigritum* Omicron Giordani Soika, 1978 (262): 201 (Surinam). Syn. di Omicron aequale Giordani Soika, 1978
aequisculptus **inaequisculptus** Stenodynerus Giordani Soika, 1979 (266): 252 (Cipro)
aereus Tachyancistrocerus Giordani Soika, 1951 (117): 378 (Anatolia)
aestimabilis Antepipona Giordani Soika, 1989 (300): 56 (Alto Volta). Integrazione della descrizione in Giordani Soika, 1989 (301): 46
aestimabilis Stroudia Giordani Soika, 1989 (300): 28 (Namibia)
aethiopicus **longitudinalis** Afreumenes Giordani Soika, 1968 (201): 31 (Malawi)
aethiopicus Raphiglossoides Giordani Soika, 1936 (037): 77 (S Africa)
aethiopicus Zethus Giordani Soika, 1940 (060): 135 (Eritrea)
aggressor Omicron Giordani Soika, 1978 (262): 154 (Messico)
agilis **cursor** Trichodynerus Giordani Soika & Kojima, 1988 (299): 178 (Papua Nuova Guinea)

[Lissodynerus agilis cursor]
agilis **multifasciatus** Lissodynerus Giordani Soika, 1994 (315): 322 (New Britain)
agilis **novae guineae** Ancistrocerus (Ancistrocerus) Giordani Soika, 1941 (069): 240 (Nuova Guinea) [Lissodynerus agilis novaeguineae]
agilis **postremus** Lissodynerus Giordani Soika, 1994 (315): 322 (New Ireland)
albidus Pterocheilus Giordani Soika, 1941 (069): 266 (Egitto)
albocincta Antepipona Giordani Soika, 1987 (294): 169 (N Nigeria)
albocinctus Subancistrocerus Giordani Soika, 1993 (313): 127 (Australia, Northern Territory)
albopilosus Zethus Giordani Soika, 1995 (318): 91 (S India)
alecto **lalepi** Pseudepipona (Epiodynerus) Giordani Soika, 1957 (146): 210 (Nuove Ebridi) [Epiodynerus alecto lalepi]. Nota: Giordani Soika cita ssp. lalepi Cheesman i.l. ma di fatto descrive la nuova ssp.
alecto **parallelus** Pseudepipona (Epiodynerus) Giordani Soika, 1957 (146): 210 (Nuove Ebridi) [Epiodynerus alecto parallelus]
alpestris **grandii** Leptochilus Giordani Soika, 1947 (095): 129 (Italia)
ambitiosus Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 104 (Turchia)
amicus Pachymenes Giordani Soika, 1943 (087): 114 (Australia, Queensland) [Antamenes (Australochilus) amicus]
amos **rufocitrinus** Leptochilus (Neoleptochilus) Giordani Soika, 1986 (293): 110 (Tunisia)
ampla **ealensis** Proepipona Giordani Soika, 1989 (300): 49 (Zaire)
ampla Proepipona Giordani Soika, 1989 (300): 48 (Liberia)
anarchica Stroudia Giordani Soika, 1977 (256): 128 (Provincia del Capo)
anatolica Psiliglossa Giordani Soika, 1979 (266): 247 (Anatolia)
andreanus **discolor** Odynerus Giordani Soika, 1941 (068): 174 (Madagascar)
andreinii (Ancistrocerus) Ancistrocerus Giordani Soika, 1939 (053): 97 (Eritrea)
androcles **marginalis** Parancistrocerus Giordani Soika, 1994 (315): 198 (Filippine)
androcles **scutellaris** Parancistrocerus Giordani Soika, 1994 (315): 197 (Filippine)
androcles **sulawensis** Parancistrocerus Giordani Soika, 1993 (312): 26 (N Sulawesi)
androcles **sumbanus** Parancistrocerus Giordani Soika, 1994 (315): 198 (Is. Sumba)
angulatus Subancistrocerus Giordani Soika, 1994 (315): 45 (Filippine)
angulatus var. **alexandriae** Odynerus (Rhynchium) Giordani Soika, 1941 (069): 255 (N Australia) [Pseudepipona angulata alexandriae]
angulicollis Subancistrocerus Giordani Soika, 1994 (315): 21 (Sumatra)
anguloides Pseudalastor Giordani Soika, 1961 (176): 138 (S Australia)
anisitsii **ornatissimus** Cyphomenes Giordani Soika, 1978 (262): 216 (Venezuela)
ankarensis Pseudepipona (Deuterepipona) Giordani Soika, 1970 (214): 148 (Turchia)
annulatus Antamenes Giordani Soika, 1994 (315): 227 (Nuova Guinea)
anomaliventris Stroudia Giordani Soika, 1987 (294): 145 (Namibia)
anomalum Allorhynchium Giordani Soika, 1992 (309): 51 (S India)
anonyma Antepipona Giordani Soika, 1985 (287): 76 (Zimbabwe)
antigai [sic] var. *uniformis* Alastor Giordani Soika, 1942 (075): 55 (Spagna). Syn. di Alastor antigae Buysson, 1903
antiquus Tachyancistrocerus Giordani Soika, 1970 (214): 85 (Belucistan)
antisrabensis Odynerus Giordani Soika, 1941 (067): 175 (Madagascar)
apicatimimus Stenodyneriellus Giordani Soika, 1996 (322): 35 (Nuova Guinea)
appenninicus Microdynerus Giordani Soika, 1958 (156): 96 (Italia)
aprica Antepipona Giordani Soika, 1989 (300): 57 (Alto Volta)
arabica Antepipona Giordani Soika, 1979 (267): 281 (Oman)
arabicus Alastor Giordani Soika, 1979 (267): 272 (Arabia)

arabicus Leptochilus (Lionotulus) Giordani Soika, 1979 (267): 274 (Arabia)
arabicus Leptodynerus Giordani Soika, 1970 (214): 62 (Arabia Saudita)
arabicus Micreumenes Giordani Soika, 1979 (267): 276 (Oman)
arabicus Pterocheilus Giordani Soika, 1970 (214): 55 (Arabia)
arbustorum var. **burlinii** Eumenes (Katamenes) Giordani Soika, 1949 (102): 46 (Italia) [Katamenes arbustorum burlinii]
arcanus Ancistrocerus Giordani Soika, 1993 (314): 157 (Cina)
arcuatus Labus Giordani Soika, 1944 (089): 152 (SW Africa) [Cyrtolabulus arcuatus]
arcuatus **maidlii** Eumenes Giordani Soika, 1934 (018): 223 (Malesia)
arcuatus **simalurensis** Eumenes Giordani Soika, 1934 (018): 222 (Sumatra)
areatus Leptomenes (Eumenidiopsis) Giordani Soika, 1940 (058): 273 (S Africa) [Stroudia areata]
argillaceum **apurimacensis** [sic] Zeta Giordani Soika, 1975 (250): 125 (Perù). Considerato da Carpenter (1987, Psyche 94: 253-259) sinonimo di Zeta argillaceum (Linnaeus, 1758). Ridiscussa e considerata buona ssp. da Giordani Soika, 1990 (303)
argillaceum **distinguendum** Zeta Giordani Soika, 1975 (250): 124 (Argentina). Considerato da Carpenter (1987, Psyche 94: 253-259) sinonimo di Zeta argillaceum (Linnaeus, 1758). Ridiscussa e considerata buona ssp. da Giordani Soika, 1990 (303)
argillaceum **incarum** Zeta Giordani Soika, 1975 (250): 126 (Perù). Considerato da Carpenter (1987, Psyche 94: 253-259) sinonimo di Zeta argillaceum (Linnaeus, 1758). Ridiscussa e considerata buona ssp. da Giordani Soika, 1990 (303)
argillaceum **pallidior** Zeta Giordani Soika, 1975 (250): 127 (Messico). Considerato da Carpenter (1987, Psyche 94: 253-259) sinonimo di Zeta argillaceum (Linnaeus, 1758). Ridiscussa e considerata buona ssp. da Giordani Soika, 1990 (303)
argillaceum **peruense** Zeta Giordani Soika, 1975 (250): 126 (Perù). Considerato da Carpenter (1987, Psyche 94: 253-259) sinonimo di Zeta argillaceum (Linnaeus, 1758). Ridiscussa e considerata buona ssp. da Giordani Soika, 1990 (303)
argillaceus **hubrichi** Zeteumenes Giordani Soika, 1969 (211): 383 (Argentina). Considerato da Carpenter (1987, Psyche 94: 253-259) sinonimo di Zeta argillaceum (Linnaeus, 1758). Ridiscussa e considerata buona ssp. da Giordani Soika, 1990 (303)
arida Pseudonortonia Giordani Soika, 1987 (294): 158 (Senegal)
arnoldi Pseudonortonia Giordani Soika, 1936 (034): 268 (S Rhodesia)
asiaticus Pseudoleptochilus Giordani Soika, 1970 (214): 78 (Siria). Syn. di Pseudosymmorphus propheta (Giordani Soika, 1952)
asmarensis Pseudochilus Giordani Soika, 1936 (035): 63 (Eritrea)
aspra Pseudepipona (Pseudepipona) Giordani Soika, 1961 (176): 85 (Australia, Queensland)
assamensis Malayepipona Giordani Soika, 1995 (318): 97 (Assam)
assamensis **manipurensis** Malayepipona Giordani Soika, 1995 (318): 98 (Assam)
astrictus Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 96 (Tunisia). Syn. di Leptochilus alpestris (Saussure, 1856)
astrophilum Anterhynchium (Dirhynchium) Giordani Soika, 1996 (322): 41 (Is. Filippine).
ata Pterochilus Giordani Soika, 1943 (085): 41 (Cirenaica)
ater **emifasciatus** Lissodynerus Giordani Soika, 1994 (315): 309 (Is. New Georgia)
ater Lissodynerus Giordani Soika, 1994 (315): 308 (Is. Solomon)
aterrima Pseudonortonia Giordani Soika, 1989 (301): 37 (Gabon)
aterrimus **bicoloratus** Afreumenes Giordani Soika, 1987 (294): 209 (Kenya)
aterrimus Labus Giordani Soika, 1944 (089): 151 (Uganda) [Micreumenes aterrimus]
aterrimus **pseudomelanosoma** Afreumenes Giordani Soika, 1968 (201): 25 (Katanga)
atlantica Pseudepipona Giordani Soika, 1969 (207): 144 (Sahara spagnolo)
atlanticus **atrurus** Ancistrocerus (Ancistrocerus) Giordani Soika, 1941 (069): 235 (Is. Capo Verde)

atlanticus **lindbergi** Ancistricerus [sic] Giordani Soika, 1966 (195): 85 (Is. Capo Verde) [Ancistrocerus atlanticus lindbergi]
atlanticus **luciae** Ancistrocerus Giordani Soika, 1966 (195): 85 (Is. Capo Verde)
atlanticus **pseudatlanticus** Ancistrocerus Giordani Soika, 1966 (195): 86 (Is. Capo Verde)
atroalbus Ancistrocerus Giordani Soika, 1960 (163): 156 (Uganda). Syn. di Ancistrocerus neavei (Meade Waldo, 1915)
atrohirtus **fereniger** Pterocheilus Giordani Soika, 1952 (119): 60 (Palestina) [Pterocheilus fereniger]
atrorufus Acarodynerus Giordani Soika, 1993 (313): 143 (W Australia)
atroscutellatus Leptochilus (Leptochilus) Giordani Soika, 1952 (120): 264 (Marocco) [Leptochilus (Neoleptochilus) atroscutellatus]
atrum **jacobsoni** Rhynchium Giordani Soika, 1994 (316): 42 (Sumatra)
aurantiaca Antepipona Giordani Soika, 1982 (279): 243 (India)
aurantiaca Pseudonortonia Giordani Soika, 1936 (034): 271 (Provincia del Capo)
aurantiacus Syneuodynerus Giordani Soika, 1993 (313): 134 (Australia, Northern Territory)
aurantiobispinosa Pseudepipona Giordani Soika, 1961 (176): 82 (S Australia). Nota: la specie viene descritta sotto questo nome in tabella (p. 82); successivamente (p. 102) viene descritta più ampiamente con un nome diverso: Pseudepipona (Syneuodynerus) aurantiopilosella. L'errore è rilevato dallo stesso Giordani Soika, 1993 (313): 134, che ne stabilisce la sinonimia [Pseudepipona (Syneuodynerus) aurantiobispinosus]
aurantiopictum Omicron Giordani Soika, 1978 (262): 106 (Brasile)
aurantiopictus Symmorphus Giordani Soika, 1986 (293): 154 (Cina)
aurantiopilosella Pseudepipona (Syneuodynerus) Giordani Soika, 1961 (176): 102 (S Australia) Nota: lapsus calami: cfr. Giordani Soika 1993 (313): 134. Syn. di Pseudepipona (Syneuodynerus) aurantiobispinosa Giordani Soika, 1961
auratipennis Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 39 (Africa orientale) [Stenodyneroides auratipennis]
aureoniger Eumenes Giordani Soika, 1958 (156): 89 (Nuova Guinea) [Hirtocoelius aureoniger]
aureosericeus **nuntius** Antodynerus Giordani Soika, 1983 (282): 130 (Zaire)
aureovillosus Ancistrocerus Giordani Soika, 1977 (257): 177 (Tibet)
australensis Euodynerus Giordani Soika, 1986 (290): 75 (Australia) [Knemodynerus australinesis]
avidus **agadirensis** Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 101 (Marocco)
avidus Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 99 (Marocco)
ayunensis Leptochilus (Euleptochilus) Giordani Soika, 1981 (272): 111 (S Arabia)
aztecus Hypalastoroides Giordani Soika, 1958 (151): 41 (Messico) [Hypalastoroides (Hypalastoroides) aztecus]
bacilliformis Leptomenes (Eumenidiopsis) Giordani Soika, 1940 (058): 271 (Natal) [Eumenidiopsis bacilliformis]
baidoensis Afroxanthodynerus Giordani Soika, 1989 (300): 54 (Somalia)
baidoensis Odynerus (Rhynchalastor) Giordani Soika, 1944 (089): 168 (Somalia) [Rhynchalastor baidoensis]
baidoensis Omicrabulus Giordani Soika, 1989 (300): 38 (Somalia)
bairstowi var. **militaris** Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 36 (Congo) [Stenodyneroides bairstowi militaris]
bakeri Zethus Giordani Soika, 1995 (318): 92 (Singapore)
bambogensis Subancistrocerus Giordani Soika, 1981 (275): 170 (Filippine). Nota: dovrebbe chiamarsi S. bambongensis (da Bambong), come del resto è correttamente citato nella successiva pag. 171
barbara Pseudonortonia Giordani Soika, 1992 (309): 50 (Provincia del Capo)
baronii Stenodynerus Giordani Soika, 1975 (246): 387 (Bhutan)

basilewskyi Labus Giordani Soika, 1955 (127): 362 (Urundi) [Micreumenes basilewskyi]
basipunctata Stroudia Giordani Soika, 1977 (256): 143 (SW Africa)
beaumonti Leptochilus (Leptochilus) Giordani Soika, 1952 (120): 263 (Marocco) [Leptochilus (Neoleptochilus) beaumonti]
beieri Ancistrocerus Giordani Soika, 1960 (163): 157 (Kilimandjaro)
bekilyensis Labus Giordani Soika, 1941 (068): 185 (Madagascar) [Cyrtolabulus bekilyensis]
bellatulus var. **brunneolus** Odynerus (Rhynchium) Giordani Soika, 1942 (074): 239 (Uganda) [Antodynerus bellatulus brunneolus]
belli Eumenes Giordani Soika, 1973 (233): 125 (India meridionale)
bellicosa Stroudia Giordani Soika, 1992 (309): 48 (S Africa)
bembeciformis var. *circensis* Pterochilus Giordani Soika, 1942 (075) : 55 (Italia). Nota: ridescritta come n. var. in Giordani Soika (082): 14. Syn. di Hemipterochilus bembeciformis terricola (Mocsary, 1883)
bensoni Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 58 (Congo) [Stenodyneroides bensoni]
bensoni Pterocheilus Giordani Soika, 1941 (069): 268 (Tibet)
bequaerti Eumenes Giordani Soika, 1934 (018): 221 (Nuove Ebridi) [Delta xanthurum bequaerti]
bhamensis **flavolimbata** Pseudonortonia Giordani Soika, 1986 (291): 77 (India)
bhamensis Pseudonortonia Giordani Soika, 1941 (069): 245 (Birmania)
bhutanensis Antepipona Giordani Soika, 1975 (246): 390 (Bhutan)
biblicus Tachyancistrocerus Giordani Soika, 1952 (119): 38 (Palestina) [Stenancistrocerus (Paratropancistrocerus) biblicus]
bicarinata Pararaphidoglossa Giordani Soika, 1978 (262): 281 (Perù)
bicingulatus Euodynerus (Pareuodynerus) Giordani Soika, 1986 (293): 138 (Giappone)
bicingulatus Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 45 (Argentina)
bicolor var. **aurantiopictus** Odynerus (Rhynchium) Giordani Soika, 1941 (069): 258 (Australia) [Pseudabispa bicolor aurantiopicta]
bicolor var. **flavescentulus** Odynerus (Rhynchium) Giordani Soika, 1941 (069): 258 (N Australia) [Pseudabispa bicolor flavescentula]
bicolor var. **nigrocinctoides** Odynerus (Rhynchium) Giordani Soika, 1941 (069): 258 (Australia) [Pseudabispa bicolor nigrocinctoides]
bicolor Stenodynerus Giordani Soika, 1994 (315): 139 (Sumatra)
bicolorata Kennethia Giordani Soika, 1994 (315): 300 (Is. Ambon)
bicoloricornis Pterocheilus Giordani Soika, 1952 (119): 59 (Palestina) [Hemipterochilus bicoloricornis]
bidentella **floralis** Stroudia Giordani Soika, 1977 (256): 123 (Provincia del Capo)
bidentella Stroudia Giordani Soika, 1977 (256): 122 (Provincia del Capo)
bidentiformis Odynerus (Rhynchium) Giordani Soika, 1942 (075): 58 (Sardegna). Syn. di Euodynerus bidentatus (Lepeletier, 1841)
bidentoides Pseudepipona (Euodynerus) Giordani Soika, 1952 (120): 250 (Marocco) [Euodynerus (Pareuodynerus) bidentoides]
biegelebeni Alastor Giordani Soika, 1942 (075): 53 (Italia)
bigutta **takaoensis** Antepipona Giordani Soika, 1982 (279): 224 (Formosa)
bilamellatus Alastor Giordani Soika, 1941 (068): 207 (Provincia del Capo)
bilaminatus Alastor Giordani Soika, 1942 (080): 421 (Provincia del Capo). Syn. di Alastor bilamellatus Giordani Soika, 1941, (nota: ridescrizione con altro nome! lapsus)
bilaminatus Zethus Giordani Soika, 1940 (060): 134 (SW Africa)
bimammillatus **occidentalis** Parachilus Giordani Soika, 1987 (294): 133 (Alto Volta)
bimammillatus Pterochilus Giordani Soika, 1944 (089): 174 (Kenya) [Parachilus bimammillatus]

birostratus Stenodyneriellus Giordani Soika, 1994 (315): 83 (Borneo)
bischoffi Paralastor Giordani Soika, 1961 (170): 12 (Australia)
bismarcki Eudiscoelius Giordani Soika, 1994 (315): 242 (Is. Bismarck)
bispinosus Alastor Giordani Soika, 1983 (282): 104 (Provincia del Capo)
bistrigatus Stenodyneriellus Giordani Soika, 1994 (315): 92 (Burma)
blandus **sumbanus** Eumenes Giordani Soika, 1992 (309): 65 (Is. Sumba)
boettcheri Eumenes (Eumenes) Giordani Soika, 1941 (069): 223 (Filippine)
boholensis **planus** Stenodyneriellus Giordani Soika, 1994 (315): 62 (Filippine)
bolivianum **flavior** Gamma Giordani Soika, 1990 (303): 163 (Bolivia)
bolivianum Gamma Giordani Soika, 1990 (303): 162 (Bolivia)
bonellii Delta Giordani Soika, 1973 (232): 72 (Etiopia)
bonellii Paravespa (Gestrodynerus) Giordani Soika, 1982 (278): 201 (Etiopia)
boranensis Pseudonortonia Giordani Soika, 1939 (195): 82 (E Africa)
borneanus Ancistrocerus Giordani Soika, 1996 (322): 43 (Borneo)
borsatoi Ectopioglossa Giordani Soika, 1996 (321): 33 (Kenya)
botswanensis Pseudochilus Giordani Soika, 1987 (294): 126 (Botswana)
brasiliensis **vechti** Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 53 (Colombia)
brevicornis Pachycoelius Giordani Soika, 1969 (206): 55 (W Australia)
brevicornis Stellepipona Giordani Soika, 1987 (295): 134 (Lesotho)
brevior Leptomenes (Eumenidiopsis) Giordani Soika, 1943 (085): 33 (S Rhodesia) [Stroudia brevior]
brevis Stenodynerus Giordani Soika, 1994 (315): 143 (Borneo)
brevithorax **kuehlhorni** Pachodynerus Giordani Soika, 1958 (156): 94 (Argentina)
breviventris Pseudepipona (Euodynerus) Giordani Soika, 1951 (117): 383 (Anatolia) [Euodynerus (Pareuodynerus) breviventris]
brincki Odontodynerus Giordani Soika, 1961 (171): 446 (SW Africa) [Antepipona brincki]
brisbanensis Stenodyneriellus Giordani Soika, 1961(176): 75 (Australia, Queesland)
brittoni Odontodynerus Giordani Soika, 1957 (150): 479 (Yemen) [Pseudodontodynerus gambiensis brittoni]
brooksi Zethus Giordani Soika, 1992 (309): 44 (Provincia del Capo)
brunneola Antepipona Giordani Soika, 1986 (293): 131 (Cina)
brunneum **ceylonicum** Rhynchium Giordani Soika, 1994 (316): 48 (Sri Lanka)
brussiloffi *melanocerus* Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 99 (Francia). Syn. di Leptochilus (Lionotulus) moustiersensis Giordani Soika, 1973
burensis Ancistrocerus Giordani Soika, 1935 (029): 104 (Africa orientale) [Subancistrocerus burensis]
bushirensis Pseudonortonia Giordani Soika, 1943 (084): 1 (Persia). Syn. di Tachyancistrocerus komarowi Morawitz, 1885
bytinskii Leptochilus Giordani Soika, 1952 (119): 52 (Palestina) [Leptochilus (Neoleptochilus) bytinskii]
bytinskii Raphiglossa Giordani Soika, 1974 (242): 124 (Israele)
cairnensis Leptomenoides Giordani Soika, 1961 (176): 177 (Australia, Queensland)
calabricus Eumenes (Eumenes) Giordani Soika, 1943 (085): 31 (Italia). Syn. di Eumenes punctaticlypeus Giordani Soika, 1943
campaniforme **chloroticum** Delta Giordani Soika, 1979 (266): 263 (Pakistan)
campaniforme **gracilior** Delta Giordani Soika, 1986 (292): 88 (Filippine)
campaniforme **nigriculum** Delta Giordani Soika, 1986 (292): 77 (Sumba-Indonesia)
campaniforme **okinawae** Delta Giordani Soika, 1986 (292): 76 (Okinawa)
campaniforme **rendalloide** Delta Giordani Soika, 1993 (314): 162 (Is. Sumba)
campaniforme var. **assatus** Eumenes Giordani Soika, 1934 (018): 224 (Australia, Queensland)

[Delta campaniforme assatum]
campaniformis **keyensis** Delta Giordani Soika, 1972 (224): 108 (Is. Key)
campaniformis **pseudopulcherrimus** Delta Giordani Soika, 1968 (200): 528 (Nubia) [Delta campaniforme pseudopulcherrimum]
campaniformis var. **subfenestralis** Eumenes (Delta) Giordani Soika, 1939 (049): 56 (Guinea portoghese) [Delta subfenestrale]
campanulatus *gladiator* Alphamenes Giordani Soika, 1978 (262): 343 (Colombia). Syn. di Alphamenes campanulatus (Fabricius, 1804)
campanulatus *luctuosus* Alphamenes Giordani Soika, 1978 (262): 344 (Colombia). Syn. di Alphamenes campanulatus (Fabricius, 1804)
campanulatus *mango* Alphamenes Giordani Soika, 1978 (262): 342 (Brit. Guyana). Syn. di Alphamenes campanulatus (Fabricius, 1804)
campanulatus *nanicolor* Alphamenes Giordani Soika, 1978 (262): 343 (Panama). Syn. di Alphamenes campanulatus (Fabricius, 1804)
camurus Odynerus (Leptochilus) Giordani Soika, 1938 (044): 8 (Egitto) [Leptochilus camurus]
canariensis Labochilus Giordani Soika, 1974 (244): 486 (Canarie)
capocacciai Parancistrocerus Giordani Soika, 1994 (315): 164 (Burma)
caprai Paralastor Giordani Soika, 1977 (258): 135 (Australia, Northern Territory)
captiosus Stenodyneroides Giordani Soika, 1989 (300): 47 (Zambia)
carbonarius Cyrtolabulus Giordani Soika, 1989 (300): 33 (Ruanda)
cariniceps Antepipona Giordani Soika, 1979 (266): 249 (Creta)
carinicollis **minimus** Stenodyneriellus Giordani Soika, 1994 (315): 108 (Malaya)
cariniventre Allorhynchium Giordani Soika, 1986 (292): 86 (Mindanao)
carinulatus Alastor (Alastorellus) Giordani Soika, 1991 (307): 51 (citato solo in tabella)
carnarvonensis Stenodyneriellus Giordani Soika, 1977 (258): 113 (W Australia)
caspicus Jucancistrocerus Giordani Soika, 1970 (214): 102 (Iran)
caucasicus Xanthodynerus Giordani Soika, 1960 (162): 133 (Caucaso) [Euodynerus (Xanthodynerus) caucasicus]
cauponalis Odynerus (Odynerus) Giordani Soika, 1977 (257): 153 (Israele)
cavifemur Pseudalastor Giordani Soika, 1961 (176): 139 (W Australia)
celebensis Stenodyneriellus Giordani Soika, 1994 (315): 98 (C. Sulawesi)
celebensis Zethus Giordani Soika, 1958 (155): 78 (Celebes)
celonitiformis Antepipona Giordani Soika, 1985 (287): 106 (Natal)
celonitiformis Eumenes (Zetheumenidion) Giordani Soika, 1944 (089): 165 (Africa orientale)
cereus Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 55 (E Africa). Syn. di Stenodyneroides caudalis (Giordani Soika, 1934)
cervus Ancistrocerus Giordani Soika, 1974 (236): 315 (Monte Ruwenzori)
chartergiforme Pseudepipona Giordani Soika, 1961 (176): 112 (Australia) [Epsilon chartergiforme]
cheesmani Parodynerus Giordani Soika, 1957 (146): 218 (Nuove Ebridi)
cherkensis Odynerus (Rhynchium) Giordani Soika, 1942 (075): 61 (Cipro) [Euodynerus cherkensis]
chibchasa Pararaphidoglossa Giordani Soika, 1978 (262): 310 (Colombia)
chilensis Ctenochilus Giordani Soika, 1964 (187): 97 (Cile)
chiliotus **vardyi** Hypodynerus Giordani Soika, 1973 (233): 112 (Perù)
chitgarensis Stenodynerus Giordani Soika, 1970 (214): 108 (Iran)
chlorotica Ischnocoelia Giordani Soika, 1993 (313): 125 (Australia, Northern Territory)
chobauti **calefactus** Pterocheilus Giordani Soika, 1970 (214): 54 (Giordania)
cilicioides Stenodyneriellus Giordani Soika, 1994 (315): 103 (Malaya)
circinale **rufonigerrimum** Delta Giordani Soika, 1973 (233): 131 (Amboina)
circumspectus **derufatus** Knemodynerus Giordani Soika, 1994 (315): 261 (Is. Solomon)

citreodecoratus Jucancistrocerus Giordani Soika, 1970 (214): 104 (Iran)
citreolineatus Eumenes (Eumenes)Giordani Soika, 1941 (064): 149 (Siam)
citropictus Parancistrocerus Giordani Soika, 1994 (315): 170 (Sulawesi)
claripenne Rhynchium Giordani Soika, 1994 (316): 43 (Borneo)
claripennis **ponticus** Ancistrocerus Giordani Soika, 1970 (214): 134 (Turchia)
cliens Symmorphus Giordani Soika, 1975 (251): 158 (Giappone)
clypalaris Pseudepipona Giordani Soika, 1961 (176): 111 (S Australia)
clypearis Stenodyneriellus Giordani Soika, 1994 (315): 75 (Filippine)
clypeolaris Micreumenes Giordani Soika, 1983 (283): 167 (Transvaal)
clypeolaris Pararaphidoglossa Giordani Soika, 1978 (262): 283 (Suriname)
cnemophila **basilewskyi** Pseudepipona (Pseudokalliepipona) Giordani Soika, 1955 (127): 366 (Urundi)
coarctatus **nuragicus** Eumenes Giordani Soika, 1986 (293): 123 (Sardegna)
coctus Pterocheilus Giordani Soika, 1970 (214): 42 (Sinai)
coenii Odynerus (Rhynchium) Giordani Soika, 1934 (017): 377 (Guinea portoghese) [Antodynerus coenii]
coeruleus Pachymenes Giordani Soika, 1943 (087): 116 (Nuova Guinea). Syn. di Eudiscoelius viridipes (Cameron, 1911)
collariventris Odynerus (Rhynchium) Giordani Soika, 1942 (075): 60 (Creta). Syn. di Euodynerus disconotatus disconotatus (Lichtenstein, 1884)
colombianus Hypalastoroides (Ortalastoroides) Giordani Soika, 1982 (277): 57 (Colombia)
communis Paraleptomenes Giordani Soika, 1994 (315): 129 (Giava)
complanatus Knemodynerus Giordani Soika, 1994 (315): 263 (Borneo)
complanatus **pelagicus** Knemodynerus Giordani Soika, 1994 (315): 265 (Filippine)
concavus Cyrtolabulus Giordani Soika, 1983 (282): 124 (Kenya)
concitatus Alastor Giordani Soika, 1934 (021): 20 (S Africa)
conclamatum Omicron Giordani Soika, 1978 (262): 169 (Brasile)
concolor **atripenne** Allorhynchium Giordani Soika, 1986 (292): 86 (Timor) [Allorhynchium tigrinum atripenne]
concolor **rapax** Pseudalastor Giordani Soika, 1977 (258): 122 (Australia, N. S. Wales)
confusus Pseudozethus Giordani Soika, 1969 (206): 46 (S Australia)
conicus Alastor (Antalastor) Giordani Soika, 1950 (106): 45 (S Rhodesia). Syn. di Alastor (Alastorellus) sulcifer Giordani Soika, 1934.
coniux Pseudonortonia Giordani Soika, 1983 (282): 113 (Zaire)
consentanea Antepipona Giordani Soika, 1989 (300): 59 (Gambia)
consors Antepipona Giordani Soika, 1982 (279): 214 (S India)
constrictiventris Pseudepipona (Pseudepipona) Giordani Soika, 1951(117): 381 (Turchia). Syn. di Stenodynerus aequisculptus aequisculptus (Kostylev, 1940)
continentalis Australozethus Giordani Soika, 1969 (206): 36 (Australia, N. S. Wales)
contrarius **alboquadrimaculatus** Ancistrocerus Giordani Soika, 1966 (195): 88 (Is. Capo Verde)
contrarius Ancistrocerus Giordani Soika, 1966 (195): 87 (Is. Capo Verde). Nota: uguale a Ancistrocerus contrarius Giordani Soika, 1956 (136): 21 nomen nudum
convergens Euodynerus (Incolepipona) Giordani Soika, 1994 (315): 255 (Is. Ogasawara)
convexiuscula Pseudonortonia Giordani Soika, 1939 (057): 84 (E Africa)
convexiventris Antepipona Giordani Soika, 1987 (297): 152 (Gambia)
convexus Australodynerus Giordani Soika, 1977 (258): 119 (Australia, Queensland)
convexus **bismarcki** Stenodyneriellus Giordani Soika, 1994 (315): 64 (Is. Bismarck)
convexus **irianus** Stenodyneriellus Giordani Soika, 1994 (315): 65 (Nuova Guinea)
convexus Leptomenes Giordani Soika, 1987 (294): 141 (S Africa)

convexus Stenodyneriellus Giordani Soika, 1994 (315): 63 (Nuova Irlanda)
corallina Stroudia Giordani Soika, 1989 (300): 29 (Namibia)
coriaceus Euodynerus (Euodynerus) Giordani Soika, 1970 (214): 160 (Belucistan) [Knemodynerus coriaceus]
corvus var. **viridipennis** Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 55 (Congo) [Stenodyneroides corvus viridipennis]
costaricensis Hypalastoroides Giordani Soika, 1958 (151): 55 (Costarica) [Hypalastoroides (Larastoroides) costaricensis]
cretensis Euodynerus Giordani Soika, 1973 (233): 115 (Creta). Syn. di Euodynerus (Euodynerus) curictensis Blüthgen, 1940
cribratus Leptomenes Giordani Soika, 1983 (282): 120 (Zaire)
criticum **pulchripictum** Omicron Giordani Soika, 1978 (262): 129 (Colombia)
criticum **richardsi** Omicron Giordani Soika, 1978 (262): 128 (Brasile)
cruciferoides Eumenes (Eumenes) Giordani Soika, 1978 (262): 28 (Messico)
cubensis **caymanensis** Pachodynerus Giordani Soika, 1969 (211): 384 (Antille, Is. Gran Cayman)
cyanopterum **assabense** Rhynchium Giordani Soika, 1987 (294): 195 (Eritrea); Ridescritto per la seconda volta Rynchium [sic] cyanopterum assabense Giordani Soika & Khan, 1991 (308): 100
cyanopterum **somaliense** Rhynchium Giordani Soika, 1987 (294): 196 (Somalia)
cylindrellus Syneuodynerus Giordani Soika, 1993 (313): 133 (W Australia)
cylindricus Alastor (Alastorellus) Giordani Soika, 1991 (307): 52 (citato solo in tabella)
cylindroides Parancistrocerus Giordani Soika, 1994 (315): 169 (N Sulawesi)
dalyi Alastor Giordani Soika, 1979 (267): 272 (Oman)
dancaliensis Trachyodynerus Giordani Soika, 1989 (300): 60 (E Africa)
dantici **poggii** Euodynerus Giordani Soika, 1986 (293): 113 (Italia) [Euodynerus (Euodynerus) dantici poggii]
dantici var. **lagostae** Odynerus Giordani Soika, 1942 (075): 58 (Dalmazia) [Euodynerus dantici lagostae]
dantici **violaceipennis** Euodynerus Giordani Soika, 1973 (233): 114 (China) [Euodynerus (Euodynerus) dantici violaceipennis]
danticoides Ancistrocerus (Eustenancistrocerus) Giordani Soika, 1943 (084): 7 (Turkestan) [Eustenancistrocerus (Eustenancistrocerus) askhabadensis danticoides]
darnleyensis Stenodyneriellus Giordani Soika, 1977 (258): 113 (Is. Darnley - Stretto di Torres)
daw **teta** Pterochilus (Onychopterocheilus) Giordani Soika, 1943 (085): 40 (Palestina)
debeaumonti Eumenes (Katamenes) Giordani Soika, 1949 (102): 44 (Marocco). Syn. di Katamenes algirus (Schulz, 1905)
decipiens **positus** Diemodynerus Giordani Soika, 1977 (258): 125 (S Australia)
declarata Antepipona Giordani Soika, 1991 (306): 80 (Madagascar)
defectus Odontodynerus Giordani Soika, 1963 (185): 147 (Senegal) [Antepipona defecta]
deflendiformis Odontodynerus Giordani Soika, 1961 (172): 377 (Belucistan). Syn. di Antepipona sibilans (Cameron, 1903)
deflendus *tiberiacus* Odontodynerus Giordani Soika, 1952 (119): 50 (Palestina). Syn. di Antepipona iconia (Blüthgen)
deminutum Omicron Giordani Soika, 1978 (262): 185 (Panama)
denticulatus Acarodynerus Giordani Soika, 1961 (176): 160 (S Australia: 164)
depressa Pseudonortonia Giordani Soika, 1983 (282): 108 (Transvaal)
depressus Hypalastoroides Giordani Soika, 1969 (211): 379 (Surinam). Syn. di Odynerus relativus Fox, 1902
depressus **palawanensis** Pseumenes Giordani Soika, 1993 (314): 158 (Filippine)

dewittei Paravespa (Gestrodynerus) Giordani Soika, 1960 (168): 386 (Congo Belga)
dictatorius Odynerus (Rhynchium) Giordani Soika, 1935 (027): 247 (Transvaal)
dietrichianus **rufocaudatus** Acarodynerus Giordani Soika, 1961 (176): 155 (Australia, Queensland)
difficilis Stroudia Giordani Soika, 1977 (256): 133 (Transvaal)
diffinis Apodynerus Giordani Soika, 1996 (322): 36 (Sulawesi)
diffinis Archancistrocerus Giordani Soika, 1986 (293): 145 (Cina)
difformis **nigerrimus** Parancistrocerus Giordani Soika, 1994 (315): 194 (Borneo)
difformis Parancistrocerus Giordani Soika, 1994 (315): 193 (Borneo)
dignotus **ankarensis** Allodynerus Giordani Soika, 1970 (214): 141 (Turchia)
dimidiaticlypeus Eumenes Giordani Soika, 1973 (233): 127 (Giappone). Syn. di Eumenes rubronotatus Pérez, 1905
dimidiatus **arrectus** Katamenes Giordani Soika, 1970 (214): 179 (Turchia)
disconotatus **laniensis** Euodynerus Giordani Soika, 1979 (266): 253 (Cipro)
discrepatus Sphaeromenes Giordani Soika, 1978 (262): 225 (Perù)
djarabubensis **algirus** Euodynerus Giordani Soika, 1983 (284): 202 (Algeria: Biskra)
djebaili [sic] Brachyodynerus Giordani Soika, 1983 (284): 200 (Algeria: Biskra). Nota: dovrebbe essere emendato in djebailii
dolorans Ancistrocerus Giordani Soika, 1935 (029): 103 (Africa orientale) [Carinstrocerus dolorans]
draco Cephalochilus Giordani Soika, 1970 (214): 40 (Turchia)
drewsenianus Acarodynerus Giordani Soika, 1961 (176): 156 (Australia)
dufourii **atripes** Discoelius Giordani Soika, 1970 (217): 328 (Mongolia)
duinensis Odynerus (Leptochilus) Giordani Soika, 1938 (044): 4 (Italia). Syn. di Leptochilus crassipuncatus (Maidl, 1922)
duplicatus **xanthochromus** Leptochilus (Euleptochilus) Giordani Soika, 1986 (293): 93 (Sardegna)
dyscherus **catarinae** Brachymenes Giordani Soika, 1990 (303): 142 (Brasile)
eatoni **gomerensis** Leptochilus (Lionotulus) Giordani Soika, 1974 (244): 484 (Canarie)
eatoni **tiraianensis** Leptochilus (Lionotulus) Giordani Soika, 1974 (244): 484 (Canarie)
eburneopictus Eumenes (Eumenes) Giordani Soika, 1940 (062): 97 (Siberia) [Eumenes pedunculatus eburneopictus]. Ridescritta come specie nuova da Giordani Soika (064): 149.
ecuadoriensis Hypalastoroides Giordani Soika, 1958 (151): 53 (Ecuador) [Hypalastoroides (Larastoroides) ecuadoriensis]
effossoides **aequus** Antodynerus Giordani Soika, 1989 (300): 66 (Namibia)
effossoides Antodynerus Giordani Soika, 1989 (300): 65 (Kenya)
effossus Antodynerus Giordani Soika, 1989 (300): 64 (Kenya)
effrenatus Euodynerus (Euodynerus) Giordani Soika, 1970 (214): 157 (Iran)
egidae Ancistrocerus Giordani Soika, 1936 (033): 234 (Sudan) [Eustenancistrocerus egidae]
egregius **arzhakanensis** Euodynerus (Syneuodynerus) Giordani Soika, 1970 (214): 167 (Armenia) [Syneuodynerus egregius arzhakanensis]
elbanus Cyrtolabulus Giordani Soika, 1977 (257): 164 (Egitto)
elegans **gazella** Eudiscoelius Giordani Soika, 1994 (315): 239 (Is. Bismarck)
elegans *libanicus* Symmorphus Giordani Soika, 1963 (184): 122 (Libano). Syn. di Symmorphus (Symmorphus) gracilis (Brulle, 1832).
elephas Omicron Giordani Soika, 1978 (262): 95 (Surinam)
elleri Odynerus (Rhynchium) Giordani Soika, 1937 (043): 356 (Natal)
elongata Pseudonortonia Giordani Soika, 1941 (068): 194 (Africa orientale)
elongatus **unifasciatus** Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 46 (Paraguay)

emarginata Stroudia Giordani Soika, 1977 (256): 137 (Provincia del Capo)
emilaevigata Stroudia Giordani Soika, 1977 (256): 124 (Provincia del Capo)
emirufulus Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 103 (Marocco)
empeyi Antepipona Giordani Soika, 1985 (287): 69 (Transvaal)
empeyi Stellepipona Giordani Soika, 1973 (233): 108 (Transvaal orientale). Syn. di Stellepipona guillarmodi Giordani Soika, 1973
empeyi Zethus Giordani Soika, 1979 (264): 36 (Transvaal)
ephippium **anatoliae** Odontodynerus Giordani Soika, 1951 (117): 385 (Anatolia) [Parodontodynerus anatoliae]
ephippium *eremicus* Odontodynerus Giordani Soika, 1961 (172): 376 (Iran). Syn di Parodontodynerus aramaeus Bluethgen, 1955
eremicus Labus Giordani Soika, 1952 (119): 15 (Palestina) [Cyrtolabulus eremicus]
errabundus Odynerus (Leptochilus) Giordani Soika, 1938 (044): 11 (Egitto) [Leptochilus (Lionotulus) errabundus]
erythrocephalus Hypalastoroides Giordani Soika, 1958 (151): 49 (Argentina). Syn. di Hypalastoroides (Hypalastoroides) ruficeps (Schrottky, 1911)
erythrospila **lesothensis** Allepipona Giordani Soika, 1987 (294): 183 (Lesotho)
erythrura Allepipona Giordani Soika, 1987 (294): 185 (Namibia)
esfandiarii Alastor (Megalastor) Giordani Soika, 1970 (214): 58 (Iran) [Megalastor esfandiarii]
euleptochiloides Leptochilus (Lionotulus) Giordani Soika, 1977 (257): 160 (Marocco)
eumeniformis Leptomenes (Eumenidiopsis) Giordani Soika, 1943 (085): 34 (S Rhodesia) [Stroudia eumeniformis]
eumenoides **caucasica** Raphiglossa Giordani Soika, 1970 (214): 28 (Armenia)
eumenoides **claripes** Leptomenes Giordani Soika, 1977 (256): 111 (Tanzania)
europaeus (Leptomenes) Leptomenes Giordani Soika, 1942 (075): 51 (Grecia) [Eumicrodynerus europaeus]
exaltata Antepipona Giordani Soika, 1982 (279): 234 (S India)
exarmatus Odynerus (Stenodynerus) Giordani Soika, 1937 (041): 359 (W Australia) [Acarodynerus exarmatus]
excellens Aruodynerus Giordani Soika, 1993 (313): 138 (Nuova Guinea)
excelsa Antepipona Giordani Soika, 1982 (279): 249 (Tibet)
excelsa **pallida** Antepipona Giordani Soika, 1982 (279): 250 (Himalaya)
exceptus Odynerus (Rhynchium) Giordani Soika, 1940 (059): 482 (Sudan Anglo-Egiziano)
exiguus Leptomenes (Eumenidiopsis) Giordani Soika, 1939 (052): 354 (Egitto). Syn. di Leptomenes chudeaui (Buysson, 1908)
exornatus Alastor Giordani Soika, 1934 (021): 15 (S Africa). Syn. di Alastor promontorii Meade Waldo, 1913
fabulosus Euodynerus Giordani Soika, 1979 (265): 241 (Niger)
facilis Alastor Giordani Soika, 1934 (021): 5 (Provincia del Capo) [Alastor (Alastorellus) facilis]
familiaris Odynerus (Rhynchium) Giordani Soika, 1939 (055): 3 (Egitto) [Euodynerus familiaris familiaris]
familiaris *judaicus* Pseudepipona (Euodynerus) Giordani Soika, 1952 (119): 42 (Palestina) [Euodynerus familiaris judaicus]: così secondo l'Hymenopterorum Catalogus, ma la specie non risulta descritta in quella pubblicazione, né viene citata tra quelle descritte da Giordani Soika, 1973 (230). Probabile nomen nudum.
familiaris **muscatensis** Euodynerus Giordani Soika, 1970 (214): 154 (Arabia)
fasciaticollis Ancistrocerus Giordani Soika, 1974 (236): 317 (Monte Kenya)
fasciaticollis **flavocaudatus** Ancistrocerus Giordani Soika, 1974 (236): 318 (Monte Elgon)

fastidiosissimus Eumenes (Eumenes) Giordani Soika, 1943 (085): 29 (Italia). Syn. di Eumenes pomiformis pomiformis (Fabricius, 1781)
fastidiosissimus **rufescens** Stenodynerus Giordani Soika, 1977 (257): 168 (Cirenaica)
fatua Antepipona Giordani Soika, 1985 (287): 66 (Zaire)
fausti **aurantiopictus** Pterocheilus Giordani Soika, 1970 (214): 49 (Turchia)
faustus Alastor Giordani Soika, 1941 (068): 208 (S Africa). Nota: ridescritta come sp. nov. da Giordani Soika 1942 (080): 440
faustus **gaudens** Alastor (Alastor) Giordani Soika, 1991 (307): 54 (S Africa)
feai Parancistrocerus Giordani Soika, 1994 (315): 190 (Burma)
felinus Pseudomicrodynerus Giordani Soika, 1938 (044): 3 (Egitto). Syn. di Pseudomicrodynerus (Pachymicrodynerus) hoetzendorfi (Dusmet, 1917)
femoratus **flavissimus** Zetheumenidion Giordani Soika, 1987 (294): 200 (Provincia del Capo); ridescritto per la seconda volta da Giordani Soika, 1989 (300): 66 (S Africa)
ferruginatus var. **capensis** Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 52 (Natal) [Stenodyneroides ferruginatus capensis]
ferrugineimaculatus Ovodynerus Giordani Soika, 1985 (287): 137 (Zimbabwe)
ferrugineipes Eudiscoelius Giordani Soika, 1994 (315): 241 (Is. Solomon)
ferrugineoclypeatus Ancistrocerus Giordani Soika, 1960 (163): 155 (Tanganyika)
ferrugineus Antamenes (Australochilus) Giordani Soika, 1977 (258): 133 (Australia, Northern Territory)
fischeri Pseudonortonia Giordani Soika, 1987 (294): 162 (Sudan)
flammiger **nigroflammeus** Flammodynerus Giordani Soika, 1961 (176): 131 (Australia, Victoria)
flava Pseudepipona Giordani Soika, 1993 (313): 131 (W Australia)
flavescens **karachiensis** Antodynerus Giordani Soika, 1970 (214): 140 (Belucistan)
flavicornis Leptochilus (Lionotulus) Giordani Soika, 1970 (214): 68 (Turkmenistan)
flaviventris Ancistrocerus Giordani Soika, 1986 (293): 118 (Marocco). Syn. di Ancistrocerus kitcheneri (Dusmet, 1917)
flaviventris Stenodyneriellus Giordani Soika, 1994 (315): 85 (Filippine)
flaviventris **obscurus** Stenodyneriellus Giordani Soika, 1994 (315): 87 (Filippine)
flavoclypeatus Stenodyneriellus Giordani Soika, 1994 (315): 77 (Filippine)
flavofasciatellus Odynerus (Stenodyneroides) Giordani Soika, 1940 (059): 472 (Natal) [Stenodyneroides flavofasciatellus]
flavoferrugineus Chlorodynerus Giordani Soika, 1970 (214): 170 (Iran)
flavolineata Pseudonortonia Giordani Soika, 1943 (282): 117 (Zaire)
flavomarginatum *luctuosum* Anterhynchium (Dirhynchium) Giordani Soika, 1986 (292): 74 (Okinawa). Syn. di Anterhynchium flavomarginatum hanedai Yamane & Tano, 1983
flavomarginatum **papuanum** Anterhynchium (Dirhynchium) Giordani Soika, 1986 (322): 40 (Nuova Guinea)
flavoniger Antamenes (Australochilus) Giordani Soika, 1977 (258): 132 (Australia, Queensland)
flavopunctatum var. **opulentum** Anterhynchium (Dirhynchium) Giordani Soika, 1973 (233): 120 (China)
flavorufus Pterochilus Giordani Soika, 1941 (068): 199 (S Rhodesia) [Parachilus flavorufus]
flavospinosus Pachymenes Giordani Soika, 1986 (292): 79 (Filippine) [Apodynerus flavospinosus]
flavotestacea Paranortonia Giordani Soika, 1941 (065): 155 (Brasile) [Stenonartonia flavotestacea]
flavotorquatus Odynerus (Rhynchalastor) Giordani Soika, 1944 (089): 168 (Africa orientale) [Rhynchalastor flavotorquatus]
flavus var. *tripolitanus* Eumenes (Ischnogasteroides) Giordani Soika, 1939 (054): 198 (Fezzan). Syn. di Ischnogasteroides flavus Magretti, 1884
flegias Odynerus (Leptochilus) Giordani Soika, 1938 (044): 6 (Sinai) [Leptochilus

(Euleptochilus) flegias]
flexilis Odynerus (Leptochilus) Giordani Soika, 1938 (044): 10 (Egitto) [Leptochilus (Lionotulus) flexilis]
floricola **inaequalis** Allodynerus Giordani Soika, 1970 (214): 142 (Turchia)
foersteri Hypodynerus Giordani Soika, 1961 (173): 385 (Bolivia)
formosensis **continentalis** Apodynerus Giordani Soika, 1994 (315): 217 (Cina)
formosensis **indicus** Apodynerus Giordani Soika, 1994 (315): 218 (Nepal)
formosensis **nigrior** Eumenes Giordani Soika, 1973 (233): 126 (China) [Eumenes nigrior]
fouadi **dhofariensis** Syneuodynerus Giordani Soika, 1979 (267): 284 (Arabia, Dhofar)
fouadi Odynerus (Rhynchium) Giordani Soika, 1939 (055): 1 (Egitto) [Euodynerus (Syneuodynerus) fouadi fouadi]
fouadi **tensiftensis** Pseudepipona (Syneuodynerus) Giordani Soika, 1952 (120): 255 (Marocco) [Euodynerus (Syneuodynerus) fouadi tensiftensis]
frigidus Ancistrocerus Giordani Soika, 1977 (257): 176 (Tibet)
frontalis Antepipona Giordani Soika, 1982 (279): 255 (Sri Lanka)
fukaianus var. **opulentissimus** Ancistrocerus (Ancistrocerus) Giordani Soika, 1941 (069): 238 (Cina)
fulvior Eumenes (Pararaphidoglossa) Giordani Soika, 1941 (069): 227 (nom. nov. per Pararaphidoglossa fulva Schulthess, 1910 nec Eumenes fulvus Ev.). Syn. di Pararhaphidoglossa fulva Schulthess, 1910
fulvipennis Incodynerus Giordani Soika, 1973 (233): 109 (Bolivia)
fulvoides Pararaphidoglossa Giordani Soika, 1978 (262): 330 (Brasile)
fulvopilosellus Eumenes Giordani Soika, 1965 (190): 14 (Kashgar)
funereus Hypalastoroides Giordani Soika, 1958 (151): 45 (Bolivia) [Hypalastoroides (Ortalastoroides) funereus]
furiosum Omicron Giordani Soika, 1978 (262): 133 (Panama)
fuscipennis **indotatoides** Odynerus (Rhynchalastor) Giordani Soika, 1944 (089): 169 (Africa orientale portoghese) [Rhynchalastor fuscipennis indotatoides]
fusiformis Stroudia Giordani Soika, 1987 (294): 144 (Namibia)
geae Ancistrocerus Giordani Soika, 1974 (236): 313 (Tanzania)
gemma Leptochilus (Lionotulus) Giordani Soika, 1970 (214): 66 (Giordania) [Leptochilus (Sarochilus) gemma]
gemmeus Odynerus (Leptochilus) Giordani Soika, 1941 (071): 10 (Marocco) [Leptochilus (Lionotulus) gemmeus]
genalis Odynerus (Leptochilus) Giordani Soika, 1941 (071): 9 (Cirenaica) [Leptochilus (Lionotulus) genalis]
geometricus Odynerus (Rhynchium) Giordani Soika, 1940 (059): 474 (S Africa)
geometricus var. **steinkopfi** Odynerus (Rhynchium) Giordani Soika, 1940 (059): 476 (Namaqualand).
gestroi Alastor Giordani Soika, 1934 (021): 17 (S Rhodesia)
gestroi var. **ditior** Odynerus (Odynerus) Giordani Soika, 1935 (027): 251 (S Africa) [Paravespa (Gestrodynerus) spinigera ditior]
gestroi var. **nairobiensis** Odynerus (Odynerus) Giordani Soika, 1935 (027): 251 (Kenya) [Paravespa (Gestrodynerus) nairobiensis]
gestroi var. **pretoriensis** Odynerus (Odynerus) Giordani Soika, 1935 (027): 250 (Transvaal) [Paravespa (Gestrodynerus) pretoriensis]
gestroi **problematica** Paravespa (Gestrodynerus) Giordani Soika, 1960 (168): 379 (Somalia)
ghilianii **flavissimus** Pachymenes Giordani Soika, 1990 (303): 83 (Trinidad)
gibbiventris Pararaphidoglossa Giordani Soika, 1978 (262): 307 (Brasile)
gibbosum Afrogamma Giordani Soika, 1987 (294): 205 (Tanzania)

glaber Micreumenes Giordani Soika, 1983 (283): 172 (Congo)
glaber **rufinus** Micreumenes Giordani Soika, 1983 (283): 173 (Transvaal)
glabripalpis **nigeriensis** Pseudochilus Giordani Soika, 1987 (294): 123 (Nigeria)
glacialis Eumenes (Eumenes) Giordani Soika, 1940 (062): 96 (Siberia)
globosus Alastor Giordani Soika, 1934 (021): 11 (S Africa)
globosus Globodynerus Giordani Soika, 1987 (294): 173 (Congo)
glomeratus Pterocheilus Giordani Soika, 1977 (257): 158 (N India)
gondwanianum Omicron Giordani Soika, 1978 (262): 103 (S America), nota: tipo non designato
gracilior Parancistrocerus Giordani Soika, 1995: 98 (Indonesia)
graciliventris **octomaculata** Polistepipona Giordani Soika, 1989 (300): 52 (W Africa)
graciliventris Pseudepipona Giordani Soika, 1950 (106): 45 (S Rhodesia) [Polistepipona graciliventris]
gracillimus Eumenes (Ischnogasteroides) Giordani Soika, 1941 (072): 98 (Alto Egitto). Nota: nome preoccupato da Eumenes gracillima Tullgren, 1904. Nuovo nome Ischnogasteroides tenuissimus Giordani Soika, 1941
graculum **atripes** Omicron Giordani Soika, 1978 (262): 102 (Colombia)
graculum **schlaeflei** Omicron Giordani Soika, 1978 (262): 102 (Venezuela)
grandidieri **limbatulus** Epiodynerus Giordani Soika, 1991 (306): 81 (Madagascar).
gregarioides Pachymenes Giordani Soika, 1986 (292): 80 (Filippine) [Apodynerus gregarioides]
gribodianus **abyssinicus** Eumenes Giordani Soika, 1975 (249): 89 (Etiopia)
gribodoide **guigliae** Omicron Giordani Soika, 1978 (262): 77 (Ecuador)
gribodoide Omicron Giordani Soika, 1978 (262): 74 (Colombia)
guerinii var. **rufoflavus** Tricarinodynerus Giordani Soika, 1940 (059): 480
guerinii **deserticola** Tricarinodynerus Giordani Soika, 1961 (171): 445 (Cape Prov.)
guerinii **rufoflavus** Odynerus (Rhynchium) Giordani Soika, 1940 (059): 480 (Sudan) [Tricarinodynerus rufoflavus]
guichardi Alastor (Alastor) Giordani Soika, 1958 (156): 99 (Somalia) Alastor (Alastorellus) guichardi
guichardi Antepipona Giordani Soika, 1979 (265): 238 (Costa d'oro)
guichardi Chlorodynerus Giordani Soika, 1974 (240): 81 (Abd-el-Kuri)
guichardi Gribodia Giordani Soika, 1974 (237): 111 (NE Borneo)
guichardi Leptochilus (Lionotulus) Giordani Soika, 1973 (231): 69 (S Francia). Syn. di Leptochilus (Lionotulus) alpestris iberobarbarus Bluthgen, 1953
guichardi Odynerus (Odynerus) Giordani Soika, 1977 (257): 154 (Israele)
guichardi Parachilus Giordani Soika, 1979 (265): 235 (Niger)
guichardi Paraleptomenes Giordani Soika, 1994 (315): 128 (Borneo)
guichardi Paramischocyttarus Giordani Soika, 1987 (294): 117 (Gambia)
guigliae Odynerus (Rhynchium) Giordani Soika, 1934 (017): 381 (nomen novum per Odynerus (Rhynchium) hyacintae sensu Bequaert, 1918 nec Gribodo, 1891)
guillarmodi Cyphodynerus Giordani Soika, 1985 (287): 151 (Lesotho)
guillarmodi Eumenes Giordani Soika, 1975 (249): 80 (Lesotho)
guillarmodi **kalahariensis** Cyphodynerus Giordani Soika, 1985 (287): 155 (Botswana)
guillarmodi Micreumenes Giordani Soika, 1983 (283): 171 (Natal)
guillarmodi Stellepipona Giordani Soika, 1973 (233): 107 (Provincia del Capo)
guillarmodi Stroudia Giordani Soika, 1983 (282): 122 (Provincia del Capo)
gusenleitneri Stenodynerus Giordani Soika, 1986 (293): 117 (Marocco)
haarlovi Eustenancistrocerus Giordani Soika, 1962 (180): 132 (Afghanistan)
hackeri Antamenes (Australochilus)Giordani Soika, 1961 (176): 198 (Australia, Queensland)
haematodes **antelucanus** Ancistrocerus Giordani Soika, 1974 (244): 489 (Canarie)

haemorrhoidale *samurayi* Rhynchium Giordani Soika, 1973 (233): 119 (Giappone). Syn. di Rhynchium quinquecinctum fukaii Cameron, 1911
hamoni Antepipona Giordani Soika, 1987 (294): 166 (Mali)
hessei Antepipona Giordani Soika, 1985 (287): 72 (Provincia del Capo)
hessei Eumenes (Zetheumenidion) Giordani Soika, 1944 (089): 162 (Namaqualand)
hessei Leptomenes (Eumenidiopsis) Giordani Soika, 1940 (058): 276 (S Africa) [Stroudia hessei]
hilaris Carinstrocerus Giordani Soika, 1989 (300): 45 (Zaire)
hirsutus **khambensis** Ancistrocerus Giordani Soika, 1977 (257): 176 (Sikkim)
hirsutus **supiensis** Ancistrocerus Giordani Soika, 1977 (257) : 175 (Tibet)
hirsutus **tinkiensis** Ancistrocerus Giordani Soika, 1977 (257): 175 (Tibet)
hispanica Pseudepipona (Brachypipona) Giordani Soika, 1973 (233): 108 (Spagna)
histrio Leptomenoides Giordani Soika, 1961 (176): 180 (Australia, N. S. Wales)
histrionimimus var. **caudalis** Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 42 (Uganda) [Stenodyneroides caudalis]
hoggarica Pseudepipona (Euodynerus) Giordani Soika, 1952 (119): 41 (Hoggar). Syn. di Chlorodynerus kelidopterus (Kohl, 1907)
horni Odynerus (Rhynchium) Giordani Soika, 1935 (027): 243 (Sri Lanka)
hostilis Antamenes (Australochilus) Giordani Soika, 1961 (176): 195 (Australia, Queensland)
hottentottum **nigriventre** Delta Giordani Soika, 1989 (300): 67 (Angola)
hottentottum **unicoloripenne** Delta Giordani Soika, 1989 (301): 58 (Alto Volta)
hottentottus **tibesticus** Eumenes (Delta) Giordani Soika, 1954 (124): 29 (Tibesti) [Delta hottentottum tibesticum]
hottentottus var. **berlandi** Eumenes Giordani Soika, 1934 (018): 226 (Eritrea) [Delta hottnetottum berlandi]
houskai Eumenes (Eumenes) Giordani Soika, 1952 (119): 17 (Palestina). Syn. di Eumenes mediterraneus mediterraneus (Kriechbaumer, 1879)
humerale Stenosigma Giordani Soika, 1990 (303): 155 (Bolivia)
humeralis Ovodynerus Giordani Soika, 1989 (301): 47 (Alto Volta)
hyalinelamellatus Odynerus Giordani Soika, 1941 (067): 174 (Madagascar)
hypodynericolor Ancistrocerus Giordani Soika, 1966 (198): 108 (S Tibet). Syn di Ancistrocerus hirsutus (Meade-Waldo, 1910)
iactans Odynerus (Rhynchium) Giordani Soika, 1937 (043): 345 (Mozambico) [Antodynerus iactans]
ichneumonideus **kaszabi** Ancistrocerus Giordani Soika, 1970 (217): 331 (Mongolia)
ignotus Stenodynerus Giordani Soika, 1994 (315): 138 (W Giava)
imitator Stenodyneroides Giordani Soika, 1983 (282): 126 (Natal)
imitatrix Pararaphidoglossa Giordani Soika, 1978 (262): 273 (Br. Guyana)
immodestus Odynerus (Leptochilus) Giordani Soika, 1941 (071): 12 (Tunisia) [Leptochilus (Lionotulus) immodestus]
improcerus Zethus Giordani Soika, 1995 (318): 91 (Malay Peninsula). Nota: Giordani Soika attribuisce Z. improcerus a v. d. Vecht i. l. ma di fatto descrive la nuova specie
improvisus Eumenes Giordani Soika, 1975 (249): 94 (Tanzania)
impunctatus **cyrenaicus** Ancistrocerus Giordani Soika, 1977 (257): 175 (Cirenaica)
impunctatus Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 53 (Venezuela)
inaequalis Stroudia Giordani Soika, 1987 (294): 143 (Namibia)
incognitus Odynerus (Rhynchium) Giordani Soika, 1942 (074): 234 (SW Africa)
incola Epsilon Giordani Soika, 1994 (315): 277 (Papua Nuova Guinea)
incola Eumenes (Delta) Giordani Soika, 1935 (031): 134 (Nuova Guinea) [Delta incola]

incola var. **aruensis** Eumenes (Delta) Giordani Soika, 1935 (031): 137 (Is. Aru) [Delta incola aruense]
incola **cyclops** Eumenes Giordani Soika, 1958 (156): 91 (Nuova Guinea)
incomparabilis Antodynerus Giordani Soika, 1970 (214): 138 (Iran)
incorruptus **demens** Parancistrocerus Giordani Soika, 1972 (224): 102 (Sikkim)
incorruptus **kalimpongensis** Parancistrocerus Giordani Soika, 1994 (315): 165 (India)
incorruptus Parancistrocerus Giordani Soika, 1972 (224): 101 (Assam)
incospicuus Alastor Giordani Soika, 1934 (021): 24 (Provincia del Capo)
incuriosa Stroudia Giordani Soika, 1989 (300): 30 (S Africa)
indecoratus Odynerus Giordani Soika, 1961 (176): 201 (W Australia) n. nom. per Odynerus decoratus Bingham, 1912, nec Saussure, 1855
indica **borneana** Pseudozumia Giordani Soika, 1958 (156): 92 (Borneo)
indica **continentalis** Pseudozumia Giordani Soika, 1958 (156): 92 (Sikkim)
indicus Zethus Giordani Soika, 1958 (155): 76 (Sikkim)
indosinensis Pseudozumia Giordani Soika, 1958 (156): 93 (Sikkim)
indotatus Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 45 (Zambesi) [Stenodyneroides indotatus]
inexpectatum Delta Giordani Soika, 1982 (281): 209 (S Africa)
infernalis **weyrauchi** Cyphomenes Giordani Soika, 1978 (262): 222 (Brasile)
inflaticeps Parancistrocerus Giordani Soika, 1994 (315): 181 (W Giava)
inflatipes Leptochilus (Leptochilus) Giordani Soika, 1952 (120): 265 (Marocco)
infrenis Chlorodynerus Giordani Soika, 1970 (214): 172 (Iran)
infucatus Odynerus (Rhynchium) Giordani Soika, 1935 (027): 246 (Transvaal)
injucunda Antepipona Giordani Soika, 1973 (233): 104 (Cina). Syn. di Antepipona biguttata (Fabricius, 1787)
innatus Leptochilus (Lionotulus) Giordani Soika, 1970 (214): 69 (Turkmenistan)
insalubris Astalor Giordani Soika, 1989 (300): 22 (S Africa)
insanus Odynerus (Rhynchium) Giordani Soika, 1943 (084): 10 (Is. Rodi) [Antepipona insana insana]
insignis **loquax** Alphamenes Giordani Soika, 1978 (262): 357 (Paraguay)
insignis **richardsi** Alphamenes Giordani Soika, 1978 (262): 357 (Brasile)
insolita Acarepipona Giordani Soika, 1985 (288): 193 (Transvaal). Syn. di Acarepipona pervigilans (Giordani Soika, 1944)
insueta Monobia Giordani Soika, 1969 (211): 382 (Argentina)
insueta Stroudia Giordani Soika, 1977 (256): 130 (Provincia del Capo)
integra **carnowi** Ischnocoelia Giordani Soika, 1969 (206): 87 (S Australia)
interiacens Pseudonortonia Giordani Soika, 1987 (294): 160 (Alto Volta)
interruptus **hispanicus** Tropidodynerus Giordani Soika, 1966 (197): 94 (Spagna)
intricatus Chlorodynerus Giordani Soika, 1957 (144): 141 (Egitto)
inversa Kennethia Giordani Soika, 1994 (315): 296 (Borneo)
invertitus Eumenes (Zetheumenidion) Giordani Soika, 1944 (089): 164 (Africa orientale)
invida Stellepipona Giordani Soika, 1987 (295): 138 (Provincia del Capo)
invisibile **flavonigrum** Omicron Giordani Soika, 1973 (233): 130 (Panama) [Omicron flavonigrum]
irakensis Antepipona Giordani Soika, 1970 (214): 121 (Irak)
irana Raphiglossa Giordani Soika, 1970 (214): 28 (Iran)
iranensis Ancistrocerus (Ancistrocerus) Giordani Soika, 1943 (084): 6 (Persia). Syn. di Eustenancistrocerus amadanensis (Saussure, 1855)
iranus Cyrtolabus Giordani Soika, 1968 (202): 112 (Iran centrale) [Cyrtolabulus iranus]
iratus Eustenancistrocerus Giordani Soika, 1989 (301): 41 (Alto Volta)

iriensis Stenodyneriellus Giordani Soika, 1995 (318): 95 (Nuova Guinea)
irritatus Parancistrocerus Giordani Soika, 1972 (224): 103 (Sikkim)
ishikawai Symmorphus Giordani Soika, 1975 (251): 159 (Giappone). Syn. di Symmorphus (Symmorphus) lucens (Kostylev, 1938)
israelensis Eustenancistrocerus Giordani Soika, 1952 (119): 34 (Israele) [Eustenancistrocerus (Eustenancistrocerus) israelensis]
jacoti Antepipona Giordani Soika, 1985 (287): 112 (Lesotho)
jacoti Eumenidiopsis Giordani Soika, 1977 (256): 150 (Provincia del Capo)
javana Gribodia Giordani Soika, 1974 (237): 109 (Giava)
javana Kennethia Giordani Soika, 1994 (315): 299 (Giava)
jenjouristei **tibesticus** Katamenes Giordani Soika, 1974 (238): 121 (Tibesti)
jocosa **tropicaloides** Antepipona Giordani Soika, 1985 (287): 100 (Zaire)
jonius var. **clausus** Odynerus (Rhynchium) Giordani Soika, 1943 (084): 11 (N Siria) [Pseudepipona (Deuterepipona) ionia clausa]
josephi Leptochilus Giordani Soika, 1947 (095): 130 (Italia) [Leptochilus (Lionotulus) josephi]
jucundus **afghanus** Eustenancistrocerus Giordani Soika, 1962 (180): 131 (Afghanistan) [Jucancistrocerus jucundus afghanus]
jugulatus Antamenes (Australochilus) Giordani Soika, 1977 (258): 131 (Australia, Victoria)
junodiana **rubripes** Synagris (Pseudagris) Giordani Soika, 1987 (294): 139 (Senegal)
juvenilis Stroudia Giordani Soika, 1977 (256): 142 (Provincia del Capo)
kanthaleyensis Odynerus (Rhynchium) Giordani Soika, 1935 (027): 245 (Sri Lanka). Syn. di Epsilon burmanicum (Bingham, 1897)
kaokoveldensis Leptomenes (Eumenidiopsis) Giordani Soika, 1943 (085): 33 (SW Africa) [Stroudia kaokoveldensis]
karadgensis Antepipona Giordani Soika, 1970 (214): 118 (Iran)
karaikkalensis Pseudodontodynerus Giordani Soika, 1981 (274): 419 (India)
karibae **angolensis** Antepipona Giordani Soika, 1987 (294): 168 (Angola)
kashmirensis Antepipona Giordani Soika, 1977 (257): 168 (Kashmir)
kashmirensis Eumenes (Delta) Giordani Soika, 1939 (049): 54 (Kashmir) [Delta kashmirensis]
kassalensis Odynerus (Rhynchium) Giordani Soika, 1939 (052): 359 (Sudan) [Antepipona kassalensis]
kaszabi Stenodynerus Giordani Soika, 1976 (253): 273 (Mongolia)
katonai var. **insecutor** Odontodynerus Giordani Soika, 1951 (114): 84 (Zimbabwe) [Gioiella insecutor]
keiseri **nigra** Ectopioglossa Giordani Soika, 1993 (314): 159 (Vietnam)
kelneri Antodynerus Giordani Soika, 1965 (192): 48 (Costa d'Avorio)
kelneri Micreumenes Giordani Soika, 1983 (283): 158 (Camerun)
kennethianus Parancistrocerus Giordani Soika, 1994 (315): 178 (Borneo)
kenyaensis Ancistrocerus Giordani Soika, 1974 (236): 310 (Kenya)
kenyaensis **maximus** Ancistrocerus Giordani Soika, 1974 (236): 310 (Kenya)
khangmarensis Ancistrocerus Giordani Soika, 1966 (198): 110 (S Tibet)
khuzestanicus Euodynerus (Euodynerus) Giordani Soika, 1970 (214): 155 (Iran)
khuzestanicus Eustenancistrocerus (Eustenancistrocerus) Giordani Soika, 1970 (214): 97 (Iran)
kiangsuensis Eumenes (Eumenes) Giordani Soika, 1941 (064): 138 (Cina)
kibonotensis **rufisquama** Pseudonortonia Giordani Soika, 1989 (301): 33 (Camerun)
kimberleyensis Cyphodynerus Giordani Soika, 1985 (287): 149 (Transvaal)
kimberleyensis **occidentalis** Cyphodynerus Giordani Soika, 1985 (287): 151 (Namibia)
kochi Alastor Giordani Soika, 1983 (282): 104 (S Africa)
koenigsmanni Euodynerus (Pareuodynerus) Giordani Soika, 1972 (224): 99 (Sikkim)

kogimai Anterhynchium (Epiodynerus) Giordani Soika, 1986 (292): 74 (Okinawa)
kolensis Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 36 (Africa orientale) [Stenodyneroides kolensis]
korbi Alastor (Alastor) Giordani Soika, 1958 (156): 97 (Asia Minore). Syn. di Alastor (Alastor) pentheri Kohl, 1905
koriensis Eumenes Giordani Soika, 1992 (309): 64 (Is. Sumba).
krausei Ancistrocerus Giordani Soika, 1966 (198): 111 (S Tibet)
kuehlhorni Alastor (Alastor) Giordani Soika, 1958 (156): 98 (Asia Minore). Syn di Alastor (Alastor) biegelebeni Giordani Soika, 1942
kurandensis Lissodynerus Giordani Soika, 1994 (315): 318 (Australia, Queensland)
labiatus Eumenes (Eumenes) Giordani Soika, 1941 (064): 139 (Formosa)
labiatus **flavoniger** Eumenes Giordani Soika, 1986 (293): 159 (Cina)
labiatus var. **sinicus** Eumenes (Eumenes) Giordani Soika, 1941 (064): 141 (Cina)
lacerum Omicron Giordani Soika, 1978 (262): 165 (Santo Domingo)
laethificus Leptomenes (Leptomenes) Giordani Soika, 1941 (068): 187 (Madagascar)
laetus Pterochilus Giordani Soika, 1941 (068): 201 (Provincia del Capo) [Parachilus laetus]
laetus Stenodynerus Giordani Soika, 1994 (315): 145 (Borneo)
laevis Stenodyneriellus Giordani Soika, 1994 (315): 62 (Filippine)
lamellata Stellepipona Giordani Soika, 1987 (295): 133 (Natal)
lamellatus Pseudalastor Giordani Soika, 1993 (313): 141 (W Australia)
lamellifera Pseudepipona Giordani Soika, 1987 (294): 193 (S Africa)
lamellifera **willowmorensis** Pseudepipona Giordani Soika, 1987 (294): 194 (S Africa)
lamellipes var. **lateraloides** Odynerus (Rhynchium) Giordani Soika, 1940 (059): 479 (Africa occidentale francese)
lamellipes Odynerus (Rhynchium) Giordani Soika, 1940 (059): 476 (Uganda)
laminatus **palaestinensis** Pareumenes (Nortonia) Giordani Soika, 1952 (119): 16 (Palestina)
laminiger **ruficauda** Lissodynerus Giordani Soika, 1994 (315): 307 (Borneo)
lamptoensis Afrepipona Giordani Soika, 1965 (192): 46 (Costa d'Avorio)
lateralis **paolii** Odynerus (Rhynchium) Giordani Soika, 1934 (016): 183 (Somalia)
lateralis var. **rhodesiensis** Odynerus (Rhynchium) Giordani Soika, 1941 (068): 196 (S Rhodesia) [Proepipona rhodesiensis rhodesiensis]
laticlypeus Allodynerus Giordani Soika, 1972 (224): 106 (Tenasserim)
laticlypeus Microdynerus Giordani Soika, 1971 (223): 115 (Spagna)
latipes var. **viratus** Eumenes (Katamenes) Giordani Soika, 1949 (102): 43 (Elburs) [Katamenes sesquicinctus viratus]
leclercqi Pseudonortonia Giordani Soika, 1989 (301): 39 (Senegal)
legatus Acarodynerus Giordani Soika, 1977 (258): 127 (W Australia)
lemuriae Raphiglossa Giordani Soika, 1941 (068): 179 (Madagascar)
lemuriensis Odynerus Giordani Soika, 1941 (067): 170 (Madagascar) [Antepipona lemuriensis]
lepeleterii **pilosellum** Delta Giordani Soika, 1982 (281): 212 (Kenya)
lesnei Odyenrus (Rhynchium) Giordani Soika, 1935 (025): 6 (Zambesi)
lesnei var. **warmbadensis** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 343 (SW Africa)
liberator Antepipona Giordani Soika, 1985 (287): 70 (Namibia)
libycus Eumenes (Delta) Giordani Soika, 1941 (072): 102 (Cirenaica) [Katamenes libycus]
libycus var. **rubroniger** Eumenes (Delta) Giordani Soika, 1941 (072): 103 (Sinai) [Katamenes jenjouristei rubroniger]
liliae Ancistrocerus Giordani Soika, 1952 (120): 243 (Marocco). Syn di Ancistrocerus auctus renimacula (Lepeletier, 1841)
liliae *sardous* Ancistrocerus Giordani Soika, 1979 (266): 260 (Sardegna). Syn di Ancistrocerus

auctus renimacula (Lepeletier, 1841)
limbiferoides Odynerus (Leptochilus) Giordani Soika, 1938 (044): 9 (Egitto) [Leptochilus (Euleptocilus) limbiferoides]
limpidum Pirhosigma Giordani Soika, 1978 (262): 240 (Brasile)
linae Elisella Giordani Soika, 1974 (242): 133 (Africa meridionale)
lineaticollis **stevensoni** Ancistrocerus (Ancistrocerus) Giordani Soika, 1936 (032): 42 (E Griqualand) [Ancistrocerus neuvillei stevensoni]
lobatus Antodynerus Giordani Soika, 1983 (282): 139 (Somalia)
lobatus *flavellus* Eustenancistrocerus Giordani Soika, 1952 (119): 36 (Palestina). Syn. di Eustenancistrocerus amadanensis (Saussure, 1855)
locuples Leptochilus (Lionotulus) Giordani Soika, 1970 (214): 70 (Turkmenistan)
loeffleri Chlorodynerus Giordani Soika, 1957 (144): 144 (Iran)
lofuensis Labus Giordani Soika, 1973 (233): 99 (China)
lomholdti Pseudonortonia Giordani Soika, 1983 (282): 111 (Namibia)
longebispinosa Pseudepipona (Syneuodynerus) Giordani Soika, 1961 (176): 101 (S Australia) [Syneuodynerus longebispinosus]
longisetulosus Euodynerus Giordani Soika, 1970 (214): 153 (Belucistan)
longissimus Leptomenes (Eumenidiopsis) Giordani Soika, 1939 (046): 94 (S Rhodesia) [Stroudia longissima]
longithorax Stenochilus Giordani Soika, 1987 (294): 136 (Zaire)
longithorax Stenodyneriellus Giordani Soika, 1994 (315): 113 (Borneo)
longulus Leptomenes (Eumenidiopsis) Giordani Soika, 1939 (046): 93 (SW Africa) [Stroudia longula]
lubricum Omicron Giordani Soika, 1978 (262): 145 (Messico)
lucasius var. *inombratus* Eumenes Giordani Soika, 1934 (017): 367 (Guinea portoghese). Syn. di Eumenes fuellebornianus langi Bequaert, 1918.
lucens Eudiscoelius Giordani Soika, 1994 (315): 243 (Is. Solomon)
lucidus **fasciatulus** Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 101 (Marocco)
lucidus Odynerus (Leptochilus) Giordani Soika, 1941 (071): 10 (Tunisia) [Leptochilus (Lionotulus) lucidus]
lunaris Acarodynerus Giordani Soika, 1977 (258): 127 (W Australia)
lustratum Omicron Giordani Soika, 1978 (262): 184 (Bolivia)
luteoniger Odynerus (Rhynchium) Giordani Soika, 1942 (074): 231 (S Africa)
lutorius Pterochilus Giordani Soika, 1942 (075): 56 (Alto Egitto). Syn. di Pterocheilus fausti Morawitz, 1873
lutra Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 41 (Nyasaland) [Stenodyneroides lutra]
luzonensis Zethus Giordani Soika, 1941 (069): 215 (Filippine)
mackayensis Leptomenoides Giordani Soika, 1961 (176): 175 (Australia, Queensland)
macrocephalus **fenestraloides** Eumenes (Delta) Giordani Soika, 1939 (049): 56 (Africa Orientale Italiana)
macrocephalus **pseudoconcinnus** Katamenes Giordani Soika, 1987 (294): 211 (Zambia)
macrostylus **zimbabwensis** Micreumenes Giordani Soika, 1983 (283): 170 (Zimbabwe)
maculiscapus **fulvicauda** Ancistrocerus Giordani Soika, 1974 (236): 312 (Tanzania)
maculiscapus **unimarginatus** Ancistrocerus Giordani Soika, 1974 (236): 312 (S Tanzania)
madecassus Alastor (Alastorellus) Giordani Soika, 1991 (307): 53 (Madagascar)
magadensis Odynerus (Rhynchium) Giordani Soika, 1937 (043): 331 (Kenya) [Antodynerus magadensis]
maidli **luculentus** Odynerus (Rhynchium) Giordani Soika, 1934 (023): 78 (Congo)
maidli Odynerus (Rhynchium) Giordani Soika, 1934 (023): 77 (Eritrea)

major Leptomenes Giordani Soika, 1977 (256): 112 (Kenya)
makilingi Parancistrocerus Giordani Soika, 1994 (315): 191 (Filippine)
malabaricus Zethus Giordani Soika, 1995 (318): 92 (Malabar)
malayanus Parancistrocerus Giordani Soika, 1994 (315): 192 (Malaysia)
malayanus Stenodynerus Giordani Soika, 1994 (315): 147 (Borneo)
malus Eustenancistrocerus (Eustenancistrocerus) Giordani Soika, 1970 (214): 96 (Iran)
mamathensis Antepipona Giordani Soika, 1985 (287): 121 (Lesotho)
mandibularis Alastor (Antalastor) Giordani Soika, 1950 (106): 43 (S Rhodesia) [Alastor (Alastorellus) mandibularis]
mandibularis Zethus Giordani Soika, 1995 (318): 93 (Flores). Nota: Giordani Soika attribuisce Z. mandibuaris a van der Vecht i. l. ma di fatto descrive la nuova specie
marcelli Stroudia Giordani Soika, 1987 (294): 142 (Somalia)
maroccanus Alastor Giordani Soika, 1942 (075): 54 (Marocco) [Eumicrodynerus maroccanus]
maroccanus Symmorphoides Giordani Soika, 1977 (257): 172 (Marocco)
masariformis Odynerus (Rhynchium) Giordani Soika, 1934 (023): 79 (Nyasaland)
masirahensis Leptochilus (Neoleptochilus) Giordani Soika, 1981 (272): 113 (Oman)
massaicus **occidentalis** Subancistrocerus Giordani Soika, 1989 (301): 42 (Gabon)
mateui Allodynerus Giordani Soika, 1970 (218): 151 (Sahara algerino)
mauritanicus **andreui** Leptochilus (Leptochilus) Giordani Soika, 1971 (223): 113 (Spagna)
mavromoustakisi Euodynerus (Euodynerus) Giordani Soika, 1970 (214): 151 (Libano)
mavromoustakisi Pterocheilus Giordani Soika, 1970 (214): 46 (Iran)
maximus Ctenochilus Giordani Soika, 1964 (187): 98 (Argentina)
meadewaldoi **postscutellaris** Proepipona Giordani Soika, 1989 (300): 50 (Angola)
meadewaldoi **sedatus** Odynerus (Rhynchium) Giordani Soika, 1940 (063): 285 (Somalia)
mearimense **putumayense** Pirhosigma Giordani Soika, 1978 (262): 245 (Perù)
mediocarinata Synagris (Rhynchagris) Giordani Soika, 1944 (089): 175 (Africa orientale)
mediocinctus **taveunensis** Parodynerus Giordani Soika, 1971 (222): 80 (Is. Fiji)
mediocris Pachycoelius Giordani Soika, 1969 (206): 60 (Australia)
mediomaculatus Alastor Giordani Soika, 1952 (119): 61 (Palestina) [Megalastor mediomaculatus]
mediterraneus *anatolicus* Eumenes (Eumenes) Giordani Soika, 1951: (117) 376 (Anatolia). Syn. di Eumenes mediterraneus mediterraneus (Kriechbaumer, 1879)
mediterraneus **manchurianus** Eumenes Giordani Soika, 1971 (221): 70 (Manciuria)
melanosoma **bicoloripennis** Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 42 (Messico)
melanosoma **ealensis** Afreumenes Giordani Soika, 1968 (201): 20 (Congo)
melanosoma **erythrosoma** Eumenes (Afreumenes) Giordani Soika, 1940 (063): 283 (Etiopia) [Afreumenes erythrosoma]
melanosoma **yemenensis** Afreumenes Giordani Soika, 1996 (321): 34 (Yemen)
mena Pterocheilus Giordani Soika, 1943 (085): 38 (Egitto)
menkei Antepipona Giordani Soika, 1986 (293): 130 (Cina: Hong Kong)
meridionalis var. **limatulus** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 350 (S Rhodesia)
merpeba Pterochilus Giordani Soika, 1943 (085): 42 (Sinai)
merredinensis Australodynerus Giordani Soika, 1961 (176): 122 (W Australia)
merredinensis **everardensis** Australodynerus Giordani Soika, 1977 (258): 119 (S Australia)
merredinensis **victoriensis** Australodynerus Giordani Soika, 1977 (258): 120 (Australia, Victoria)
mestiza Pararaphidoglossa Giordani Soika, 1978 (262): 328 (Ecuador)
metatarsalis Leptochilus (Sarochilus) Giordani Soika, 1986 (293): 112 (Tunisia)
metathoracicus **concavus** Pseudalastor Giordani Soika, 1993 (313): 141 (W Australia)
meyeri var. **expressus** Odynerus (Rhynchium) Giordani Soika, 1934 (023): 71 (Africa orientale)

[Pseudepipona (Euodynerus) expressa]
meyeri var. **turneri** Odynerus (Rhynchium) Giordani Soika, 1934 (023): 72 (SW Africa) [Pseudepipona (Euodynerus) turneri]
micans Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 101 (Turchia). Syn di Microdynerus nugdunensis (Saussure, 1856)
micella Zethus Giordani Soika, 1940 (060): 138 (SW Africa) [Stroudia micella]
micralastor Alastor (Megalastor) Giordani Soika, 1958 (156): 100 (Marocco) [Megalastor micralastor]
micropunctatus Eumenes Giordani Soika, 1975 (249): 83 (Malawi)
micropunctatus **flavolimbatus** Eumenes Giordani Soika, 1975 (249): 85 (Tanzania)
micropunctatus **kenyaensis** Eumenes Giordani Soika, 1975 (249): 86 (Kenya)
micropunctatus **usambaraensis** Eumenes Giordani Soika, 1975 (249): 85 (Tanzania)
mima Paravespa (Gestrodynerus) Giordani Soika, 1960 (168): 376 (Provincia del Capo)
mimulus Parachilus Giordani Soika, 1989 (300): 20 (Kenya)
mimus Pareumenes (Nortonia) Giordani Soika, 1981 (272): 115 (S Arabia). Syn. di Pareumenes enslini (Schulthess, 1931)
miniatus **nigrithorax** Paraleptomenes Giordani Soika, 1994 (315): 128 (India)
minidenticulata Pararaphidoglossa Giordani Soika, 1978 (262): 298 (Colombia)
minima Stroudia Giordani Soika, 1992 (309): 49 (Provincia del Capo)
minor Antepipona Giordani Soika, 1985 (287): 79 (Zambia)
minutepunctata Paravespa (Gestrodynerus) Giordani Soika, 1960 (168): 375 (SW Africa); Ridescritta come sp. nov. 1961 (171): 443
minutepunctatus Alastor (Antalastor) Giordani Soika, 1950 (106): 44 (S Rhodesia). Syn. di Alastor bucida Saussure, 1853
minutepunctatus Jucancistrocerus Giordani Soika, 1970 (214): 106 (Armenia)
minutissima Antepipona Giordani Soika, 1982 (279): 239 (Sri Lanka)
mirandus Leptochilus Giordani Soika, 1947 (095): 131 (Sicilia) [Microdynerus mirandus]
miserrimus Odynerus (Stenodynerus) Giordani Soika, 1934 (023): 48 (Rhodesia) [Stenodyneroides miserrimus]
mixtus Eumenes (Delta) Giordani Soika, 1944 (089): 166 (Africa orientale) [Delta asina mixtum]
mixtus Leptomenes Giordani Soika, 1943 (085): 32 (SW Africa) [Eumenidiopsis mixtus]
mochianus Leptochilus (Neoleptochilus) Giordani Soika, 1970 (214): 75 (Siria)
mochianus **tepidus** Leptochilus (Neoleptochilus) Giordani Soika, 1986 (293): 105 (Tunisia)
mochii Chlorodynerus Giordani Soika, 1957 (144): 146 (Egitto)
mochii Cyrtolabus Giordani Soika, 1968 (202): 117 (Sudan) [Cyrtolabulus mochii]
mochii Monobia Giordani Soika, 1973 (233): 113 (Jamaica)
mochii Pareumenes (Nortonia) Giordani Soika, 1938 (045): 113 (Somalia)
mochii Pterochilus Giordani Soika, 1942 (075): 57 (Sinai)
moelleri **aulicus** Orancistrocerus Giordani Soika, 1973 (233): 124 (China)
moestus Leptomenes (Eumenidiopsis) Giordani Soika, 1943 (085): 35 (Namaqualand) [Stroudia moesta]
monotuberculatus Stenodynerus Giordani Soika, 1972 (224): 104 (Birmania)
monstricornis Ancistrocerus (Subancistrocerus) Giordani Soika, 1941 (069): 241 (Queensland) [Subancistrocerus monstricornis]
monstricornis *nigritus* Subancistrocerus Giordani Soika & Kojima, 1988 (299): 178 (Nuova Guinea). Syn. di Subancistrocerus thalassarctos (Dalla Torre, 1889)
monstruosus Odynerus (Afrodynerus) Giordani Soika, 1934 (023): 26 (Eritrea) [Afrodynerus monstruosus]
montanus Stenodyneriellus Giordani Soika, 1995 (318): 97 (Filippine)

morbillosus Laevimenes Giordani Soika, 1978 (262): 365 (Argentina)
morbillosus Stenodynerus Giordani Soika, 1979 (266): 250 (Manciuria)
moruloides Cyrtalastor Giordani Soika, 1989 (300): 35 (Gabon). Ridescritto in Giordani Soika, 1989 (301): 30
moseri **bidimidiatus** Afreumenes Giordani Soika, 1968 (201): 23 (Congo)
moustiersensis Leptochilus (Lionotulus) Giordani Soika, 1973 (231): 70 (Francia meridionale)
mozambicanus Labus Giordani Soika, 1944 (089): 156 (Mozambico) [Micreumenes mozambicanus]
multicincta Kennethia Giordani Soika, 1994 (315): 295 (Filippine)
multicolor var. **mozambicanus** Odynerus (Rhynchium) Giordani Soika, 1935 (025): 6 (Mozambico) [Antodynerus multicolor mozambicanus]
multicolor **dhufariensis** Pseudepipona (Parepipona) Giordani Soika, 1957 (150): 477 (Oman)
multicolor Pareumenes (Pareumenes) Giordani Soika, 1935 (031): 138 (Sumbawa)
multicolor *profusus* Odynerus Giordani Soika, 1937 (043): 340 (Mozambico). Syn. di Antodynerus gribodoi (Schulthess, 1922)
multicolor var. **pallidior** Odynerus (Rhynchium) Giordani Soika, 1944 (089): 172 (Africa orientale) [Antodynerus multicolor pallidior]
multimaculatus Stenodyneriellus Giordani Soika, 1993 (311): 21 (Is. Filippine)
muscatensis Leptochilus (Euleptochilus) Giordani Soika, 1979 (267): 273 (Arabia)
mutabilis Odynerus Giordani Soika, 1937 (043): 357 (Etiopia). Nota: nome preoccupato da Odynerus mutabilis Saussure, 1863. Rimpiazzato da Odynerus scottianus Giordani Soika, 1940 (059): 484
muticoides Alastor Giordani Soika, 1941 (068): 205 (S Africa). Nota: ridescritta (come sp. nov.) da Giordani Soika, 1942 (080): 427
muticus Alastor Giordani Soika, 1941 (068): 204 (Provincia del Capo). Nota: ridescritta (come sp. nov.) da Giordani Soika, 1942 (080): 425
mutinensis *auster* Symmorphus Giordani Soika, 1975 (251): 160 (Giappone). Syn. di Symmorphus (Symmorphus) bifasciatus (Linnaeus, 1761)
nadigorum Euodynerus Giordani Soika, 1979 (266): 255 (Marocco)
nanum **geae** Omicron Giordani Soika, 1978 (262): 118 (Is. Tobago)
nanun **histrionicum** Omicron Giordani Soika, 1973 (233): 129 (Panama) [Omicron histrionicum]
nanum **incarum** Omicron Giordani Soika, 1978 (262): 116 (Perù)
nanum **trinitatis** Omicron Giordani Soika, 1978 (262): 119 (Trinidad)
natalensis var. *flammeus* Odynerus (Rhynchium) Giordani Soika, 1937 (043): 327 (Transvaal). Nota: nomen novum per Odynerus natalensis beta Schulthess, 1928 (nom. praeocc.). Syn. di Anterhynchium natalense perfidiosum (Cameron, 1910)
natalensis var**. junctus** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 327 (Transvaal)
natalensis var**. lateromaculatus** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 326 (S Rhodesia). Nota: nomen novum per Odynerus natalensis alpha Schulthess, 1928 (nom. praeocc.)
natalensis var**. rufior** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 327 (Transvaal). Nota: nomen novum per Odynerus natalensis gamma Schulthess, 1928 (nom. praeocc.)
nekt Odynerus (Rhynchium) Giordani Soika, 1943 (085): 36 (Egitto). Syn. di Pseudepipona przewalskyi (Morawitz, 1885)
nepalensis Stenodynerus Giordani Soika, 1985 (289): 40 (Nepal)
neutralis Odynerus (Leptochilus) Giordani Soika, 1943 (084): 12 (Asia Minore) [Leptochilus (Lionotulus) neutralis]
neutralis **rufior** Leptochilus Giordani Soika, 1952 (119): 52 (Siria, Kiriat) [Leptochilus (Lionotulus) neutralis rufior]

nicotrae Antepipona Giordani Soika, 1985 (287): 47 (Somalia)
niger var. **dimidiativentris** Eumenes Giordani Soika, 1941 (072): 104 (Palestina) [Katamenes dimidiativentris]
nigeriensis Afroxanthodynerus Giordani Soika, 1979 (265): 243 (Niger)
nigeriensis Odynerus (Rhynchium) Giordani Soika, 1942 (074): 251 (N Nigeria)
nigerrima Ectopioglossa Giordani Soika, 1989 (301): 54 (Gabon)
nigriculus Stenodyneriellus Giordani Soika, 1994 (315): 90 (Sri Lanka)
nigrifrons Paravespa (Gestrodynerus) Giordani Soika, 1960 (168): 387 (Congo)
nigrior Antepipona Giordani Soika, 1985 (287): 47 (Zaire)
nigripennis Lissodynerus Giordani Soika, 1993 (313): 136 (Nuova Guinea)
nigritus Subancistrocerus Giordani Soika, 1994 (315): 43 (Borneo)
nigriventris Parancistrocerus Giordani Soika, 1994 (315): 165 (Borneo)
nigrobilineolatus Pterocheilus Giordani Soika, 1942 (075): 56 (Gedda)
nigrocitrinus Leptochilus (Neoleptochilus) Giordani Soika, 1970 (214): 76 (Siria)
nigroflava Acarozumia Borsato & Giordani Soika, 1995 (317): 85 (Indonesia)
nigroflavus Alastor (Alastorellus) Giordani Soika, 1991 (307): 54 (Madagascar)
nigrofulva Pararaphidoglossa Giordani Soika, 1978 (262): 316 (Costa Rica)
nigropetiolatus **nigerrimus** Parodynerus Giordani Soika, 1971 (222): 80 (Nuove Ebridi)
nigropetiolatus Parodynerus Giordani Soika, 1957 (146): 220 (Is. Fiji)
nigrorufus Afreumenes Giordani Soika, 1968 (201): 32 (Kenya)
nigrorufus Micreumenes Giordani Soika, 1989 (300): 39 (Namibia)
nigrosericeum Rhynchium Giordani Soika, 1989 (301): 52 (Camerun)
nilensis Ancistrocerus Giordani Soika, 1935 (030): 174 (Egitto) [Eustenancistrocerus (Parastenancistrocerus) nilensis]
nilotica **saudita** Pseudepipona (Euodynerus) Giordani Soika, 1957 (150): 478 (Aden) [Euodynerus (Euodynerus) niloticus sauditus]
nimbosum Anterhynchium Giordani Soika, 1987 (294): 199 (Zimbabwe)
nipanicus **subtropicalis** Euodynerus (Pareuodynerus) Giordani Soika, 1994 (315): 252 (Is. Hainam)
nitens Leptomenes (Eumenidiopsis) Giordani Soika, 1939 (046): 88 (SW Africa) [Eumenidiopsis nitens]
nitidissimus Ancistrocerus (Parancistrocerus) Giordani Soika, 1936 (032): 39 (S Rhodesia) [Convextrocerus nitidissimus]
nitidissimus Leptomenoides Giordani Soika & Kojima, 1988 (299): 175 (Papua Nuova Guinea)
nitidissimus Stenodyneriellus Giordani Soika, 1995 (318): 93 (Nuova Guinea)
nitidus **nigricans** Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 48 (Argentina)
nitidus **pronotalis** Hypalastoroides Giordani Soika, 1958: (151) 46 (Argentina) [Hypalastoroides (Hypalastoroides) nitidus pronotalis]
nitidus Stenodyneriellus Giordani Soika, 1994 (315): 73 (Filippine)
niveatus Lissodynerus Giordani Soika, 1994 (315): 312 (Filippine)
niveopicta Pseudepipona (Pseudepipona) Giordani Soika, 1970 (214): 144 (Turchia)
nodosa Stroudia Giordani Soika, 1977 (256): 125 (SW Africa)
nona Pseudepipona (Euodynerus) Giordani Soika, 1952 (120): 252 (Marocco). Syn. di Euodynerus (Xanthodynerus) octavus (Giordani Soika, 1943)
notabile Omicron Giordani Soika, 1978 (262): 146 (Messico)
notabilis Micreumenes Giordani Soika, 1983 (283): 165 (Zaire)
notatus **cyrenaicus** Euodynerus (Pareuodynerus) Giordani Soika, 1986 (293): 116 (Cyrenaica)
notatus **tonkinensis** Euodynerus (Pareuodynerus) Giordani Soika, 1973 (233): 118 (China) [Euodynerus (Pareuodynerus) nipanicus tonkinensis]

novempunctatus Stenodyneriellus Giordani Soika, 1977 (258): 110 (Australia, Victoria)
novissimus Pseudodontodynerus Giordani Soika, 1981 (274): 418 (Provincia del Capo)
nurseanus **montanus** Paraleptomenes Giordani Soika, 1994 (315): 124 (SW India)
nurseanus Paraleptomenes Giordani Soika, 1970 (214): 79 (Belucistan)
oasis Pseudepipona (Pseudepipona) Giordani Soika, 1957 (143): 133 (Algeria)
obiensis Subancistrocerus Giordani Soika, 1994 (315): 29 (Molucche)
obscurus **consuetus** Pachymenes Giordani Soika, 1990 (303): 94 (Bolivia)
obscurus **orellanoides** Pachymenes Giordani Soika, 1990 (303): 94 (Suriname)
occidentale Delta Giordani Soika, 1975 (248): 9 (N Nigeria)
occidentalis Australozethus Giordani Soika, 1969 (206): 37 (Australia occidentale)
occidentalis **blumburyensis** Ischnocoelia Giordani Soika, 1969 (206): 84 (W Australia)
occidentalis Cyrtolabus Giordani Soika, 1969 (207): 143 (Sahara spagnolo) [Cyrtolabulus occidentalis]
occidentalis Ischnocoelia Giordani Soika, 1969 (206): 82 (W Australia)
occidentalis Leptochilus (Euleptochilus) Giordani Soika, 1986 (293): 94 (Marocco-Sahara)
occidentalis Paravespa (Gestrodynerus) Giordani Soika, 1987 (294): 119 (Senegal)
occidentalis Stenodyneroides Giordani Soika, 1989 (300): 46 (Nigeria)
occidentata Pseudepipona (Syneuodynerus) Giordani Soika, 1961 (176): 102 (W Australia)
ochraceopictus Ancistrocerus Giordani Soika, 1960 (163): 157 (Provincia del Capo)
ochraceotincta Stellepipona Giordani Soika, 1987 (295): 137 (Provincia del Capo)
octavus Odynerus (Rhynchium) Giordani Soika, 1943 (085): 37. Nota: nom. nov. per Odynerus testaceus Schulthess, 1928 [Euodynerus (Xanthodynerus) octavus]
octolineatus Stenodyneriellus Giordani Soika, 1994 (315): 111 (Malaysia)
octopunctatus Cyphodynerus Giordani Soika, 1985 (287): 147 (Zimbabwe) [Cyphodynerus salekanus octopunctatus]
oculatum **adenense** Rhynchium Giordani Soika, 1957 (150): 479 (Western Aden Protectorate)
oculatum **hebraeum** Rhynchium Giordani Soika, 1952 (119): 49 (Israele)
oculatum **ibericum** Rhynchium Giordani Soika, 1966 (197): 94 (Spagna)
oculatus Erodynerus Giordani Soika, 1994 (315): 205 (Filippine)
odynericornis Paralastor Giordani Soika, 1961 (170): 14 (Australia occidentale)
omanensis Antepipona Giordani Soika, 1979 (267): 282 (Oman)
omanensis Pseudonortonia Giordani Soika, 1979 (267): 279 (Oman)
oppugnator Odynerus (Rhynchium) Giordani Soika, 1937 (043): 360 (Congo francese)
orbata Antepipona Giordani Soika, 1989 (301): 46 (Camerun)
orellanae **vardyi** Pachymenes Giordani Soika, 1990 (303): 100 (Argentina)
ornatum **bifasciatulum** Pararhynchium Giordani Soika, 1986 (293): 141 (Cina)
ornatum **infrenis** Pararhynchium Giordani Soika, 1973 (233): 121 (China)
ornatus **alacer** Pterocheilus Giordani Soika, 1974 (244): 479 (Canarie)
ovalis Ectopioglossa Giordani Soika, 1993 (314): 160 (Cina)
pacator Odynerus Giordani Soika, 1960 (167): 365 (Bushmanland)
pachymeniformis Leptomenoides Giordani Soika, 1961 (176): 178 (Australia, N. S. Wales)
pacifica **litoralis** Stroudia Giordani Soika, 1977 (256): 137 (Provincia del Capo)
pacifica Stroudia Giordani Soika, 1977 (256): 135 (Provincia del Capo)
pagdeni Malayepipona Giordani Soika, 1993 (314): 151 (Malaya)
paglianoi Antepipona Giordani Soika, 1989 (300): 55 (Congo)
pakistanus Ancistrocerus Giordani Soika, 1986 (293): 122 (W Pakistan)
palaestinensis Tachyancistrocerus Giordani Soika, 1996: 14. Nomen nudum
palaestinicus (Ancistrocerus) Ancistrocerus Giordani Soika, 1952 (119): 22 (Palestina) [Ancistrocerus biphaleratus palaestinicus]

paleovariatus Acarodynerus Giordani Soika, 1961 (176): 162 (W Australia)
pallida Pseudepipona Giordani Soika, 1977 (258): 115 (Australia, N. S. Wales)
pallidenotatus Tachyancistrocerus Giordani Soika, 1970 (214): 90 (Iran)
pallidus Lissodynerus Giordani Soika, 1994 (315): 310 (Filippine)
papillarius **rubricornis** Eumenes Giordani Soika in Gusenleitner, 1972: 90 (Boll. Mus. civ. Stor. Nat. Venezia 22-23; N Libano)
pappi Stenodynerus Giordani Soika, 1976 (252): 290 (Corea)
papuanus Elimus Borsato & Giordani Soika, 1995 (317): 86 (Nuova Guinea)
paracaspicus Euodynerus (Euodynerus) Giordani Soika, 1970 (214): 158 (Turchia). Syn. di Euodynerus (Euodynerus) clatratus Blüthgen, 1951
paraconicus Delta Giordani Soika, 1972 (224): 107 (India meridionale)
paradisiacus Pterochilus Giordani Soika, 1941 (068): 202 (Africa orientale) [Pteromenes paradisiacus]
paradoxum **koreanum** Pararhynchium Giordani Soika, 1986 (293): 143 (Corea)
paradoxum **laetum** Pararhynchium Giordani Soika, 1986 (291): 79 (Sikkim)
paradoxum **multifasciatum** Pararhynchium Giordani Soika , 1986 (293): 143 (Cina)
paraguayensis **singularoides** Hypalastoroides (Hypalastoroides) Giordani Soika, 1982 (277): 45 (Brasile)
paralastoroides Antepipona Giordani Soika, 1985 (287): 43 (Sierra Leone)
paralleliventris Symmorphus Giordani Soika, 1952 (120): 241 (Tunisia)
parapoloi Ancistrocerus Giordani Soika, 1966 (198): 104 (S Tibet). Nomen nudum (VAN DER VECHT & FISCHER, 1972)
paraspegazzinii Omicron Giordani Soika, 1978 (262): 89 (Ecuador)
parazairensis Ancistrocerus Giordani Soika, 1934 (017): 369 (Guinea portoghese) [Eustenancistrocerus parazairensis]
pareumeniformis Jucancistrocerus Giordani Soika, 1973 (233): 102 (Iran)
parificus Parifodynerus Giordani Soika, 1961 (176): 168 (Australia)
parisii Eumenes (Eumenes) Giordani Soika, 1939 (054): 194 (Fezzan) [Eumenes (Zeteumenoides) parisii]
parvilamellatus Odynerus Giordani Soika, 1941 (067): 175 (Madagascar)
paulyi Pseudonortonia Giordani Soika, 1989 (301): 35 (Gabon)
pavidus **cuzcoensis** Parhypodynerus Giordani Soika, 1973 (233): 111 (Perù)
peculiariventris Odontodynerus Giordani Soika, 1952 (119): 50 (Palestina) [Pseudodontodynerus peculiariventris]
peculiariventris *salsus* Pseudodontodynerus Giordani Soika, 1970 (214): 124 (Iran). Syn. di Pseudodontodynerus peculiariventris (Giordani Soika, 1952)
peninsularis Stenodynerus Giordani Soika, 1994 (315): 140 (Singapore)
pensus Odynerus (Rhynchium) Giordani Soika, 1937 (039): 177 (Madagascar)
peregrinabunda Antepipona Giordani Soika, 1985 (287): 74 (Transvaal)
perpunctatus Pterocheilus Giordani Soika, 1970 (214): 51 (Turchia)
perpunctatus Stenodyneriellus Giordani Soika, 1994 (315): 91 (Borneo)
persimilis Alastor (Antalastor) Giordani Soika, 1950 (106): 44 (S Rhodesia), nec Alastor persimilis Brethes. Nome preoccupato; rimpiazzato da Alastor simillimus Giordani Soika, 1983 (282): 98
persimilis Eumenes (Eumenes) Giordani Soika, 1960 (164): 160 (Kashmir)
perspicax Allepipona Giordani Soika, 1987 (294): 188 (Zimbabwe)
perterritus Leptochilus (Lionotulus) Giordani Soika, 1970 (214): 67 (Arabia)
perversus Micreumenes Giordani Soika, 1989 (300): 38 (Kenya)
pervigilans **obscura** Acarepipona Giordani Soika, 1989 (301): 51 (Gabon)

pervigilans Odynerus (Rhynchium) Giordani Soika, 1944 (089): 172 (Africa meridionale) [Acarepipona pervigilans pervigilans]
phaleratus **kaszabi** Pterocheilus Giordani Soika, 1970 (244): 328 (Mongolia)
philippinensis Labus Giordani Soika, 1986 (292): 78 (Filippine)
philippinus Ancistrocerus Giordani Soika, 1996 (322): 42 (Is. Filippine)
picturatus **nigritus** Pachymenes Giordani Soika, 1990 (303): 114 (Colombia)
pilosissima Stellepipona Giordani Soika, 1987 (295): 139 (Provincia del Capo)
pius Eumenes Giordani Soika, 1986 (291): 81 (Timor)
pius **nigrorufus** Eumenes Giordani Soika, 1992 (309): 65 (Is. Sumba)
placidior Leptomenoides Giordani Soika, 1961 (176): 180 (Australia, Queensland)
planifacies Odynerus (Odynerus) Giordani Soika, 1952 (120): 258 (Marocco). Syn. di Tropidodynerus fertoni (Dusmet, 1925)
planifrons Leptomenes (Eumenidiopsis) Giordani Soika, 1939 (046): 89 (SW Africa). Syn. di Eumenidiopsis nitens (Giordani Soika, 1939)
planiventris Discoelius Giordani Soika, 1971 (221): 68 (Manciuria)
plicatus Alastor (Alastorellus) Giordani Soika, 1991 (307): 53 (Kenya)
plumosa Stroudia Giordani Soika, 1992 (309): 47 (Provincia del Capo)
plurimaculata Antepipona Giordani Soika, 1971 (221): 69 (Manciuria)
plurinotatus Stenodyneriellus Giordani Soika, 1995 (318): 94 (Filippine)
pluviosa walzi Pararaphidoglossa Giordani Soika, 1978 (262): 316 (Argentina)
polillensis Pareumenes (Pseumenes)Giordani Soika, 1941 (069): 220 (Filippine)
polistiformis **polisticolor** Polistepipona Giordani Soika, 1989 (300): 52 (Zambia)
polistiformis Pseudepipona Giordani Soika, 1950 (106): 47 (SW Africa) [Polistepipona polistiformis polistiformis]
polistiformis var. **jonesi** Pseudepipona Giordani Soika, 1950 (106): 47 (Zululand)
polychroma Ischnocoelia Giordani Soika, 1969 (206): 92 (Australia, N. S. Wales)
pomiformis *turcicus* Eumenes (Eumenes) Giordani Soika, 1951 (117): 376 (Anatolia). Syn. di Eumenes pomiformis pomiformis (Fabricius, 1781)
possibilis Alastor Giordani Soika, 1934 (021): 20 (SW Africa)
postica *punctatissima* Pseudepipona (Euodynerus) Giordani Soika, 1951 (117): 382 (Anatolia). Syn. di Euodynerus (Pareuodynerus) posticus posticus (Herrich-Schaeffer, 1841)
posttegulatus Odynerus (Stenodynerus) Giordani Soika, 1937 (041): 356 (W Australia) [Acarodynerus posttegulatus]
praeclara Antepipona Giordani Soika, 1970 (214): 117 (Iran)
praestans Leptochilus (Lionotulus) Giordani Soika, 1970 (214): 71 (Sinai) [Leptochilus (Sarochilus) praestans]
pretiosa Estiella Giordani Soika, 1992 (309): 42 (Provincia del Capo)
pretiosissima Pseudonortonia Giordani Soika, 1943 (084): 4 (N Assam)
pretiosus *houskai* Odontodynerus Giordani Soika, 1952 (119): 50 (Palestina). Syn. di Pseudodontodynerus pretiosus (Dusmet, 1928)
priesneri Eumenes (Delta) Giordani Soika, 1941 (072): 104 (Alto Egitto) [Katamenes priesneri]
priesneri Odynerus (Rhynchium) Giordani Soika, 1935 (030): 195 (Egitto). Syn. di Odontodynerus cingulifer (Walker, 1871)
procax Alastor Giordani Soika, 1934 (021): 13 (Provincia del Capo)
prominens Odynerus (Rhynchium) Giordani Soika, 1937 (043): 305 (Nyasaland)
prompta Antepipona Giordani Soika, 1970 (214): 123 (Iran)
pronotalis Alastor Giordani Soika, 1983 (282): 101 (S Africa)
pronotalis Leptomenoides Giordani Soika, 1961 (176): 173 (Australia, Queensland)
propheta Leptomenes (Eumenidiopsis) Giordani Soika, 1952 (119): 55 (Palestina) [Eumenidiopsis

propheta]
propodalaris Acarodynerus Giordani Soika, 1961 (176): 165 (W Australia)
propodeale Omicron Giordani Soika, 1978 (262): 186 (Colombia)
propodealis Nirtenia Giordani Soika, 1989 (300): 25 (Congo)
proterrens **brazzai** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 357 (Congo)
proterrens Odynerus (Rhynchium) Giordani Soika, 1934 (017): 374 (Guinea portoghese)
pruthii Antepipona Giordani Soika, 1982 (279): 248 (Kashmir)
pseudacarodynerus Diemodynerus Giordani Soika, 1961 (176): 142 (W Australia)
pseudallodynerus Parancistrocerus Giordani Soika, 1994 (315): 183 (Borneo)
pseudancistrocerus Pseudonortonia Giordani Soika, 1961 (176): 69 (Australia, Queensland) [Stenodyneriellus pseudancistrocerus]
pseudeumenes Stroudia Giordani Soika, 1989 (300): 31 (Namibia)
pseudocoriaceus Euodynerus (Euodynerus) Giordani Soika, 1970 (214): 161 (Belucistan) [Knemodynerus pseudocoriaceus]
pseudodimidiatipennis Eumenes (Delta) Giordani Soika, 1944 (089): 166 (Eritrea) [Delta pseudodimidiatipenne]
pseudojosephi Leptochilus Giordani Soika, 1952 (119): 51 (Palestina) [Leptochilus (Lionotulus) pseudojosephi]
pseudojosephi *granadensis* Leptochilus (Lionotulus) Giordani Soika, 1971 (223): 112 (Spagna). Syn. di Leptochilus (Lionotulus) andalusicus Bluthgen, 1953
pseudoloris Flammodynerus Giordani Soika, 1961 (176): 125 (W Australia)
pseudoneotropicus Pachymenes Giordani Soika, 1943 (087): 113 (Australia) [Antamenes (Antamenes) pseudoneotropicus]
pseudoplanus Stenodyneriellus Giordani Soika, 1994 (315): 96 (Filippine)
pseudosenex Antepipona Giordani Soika, 1985 (287): 59 (Provincia del Capo)
pseudospinosus Pseudozethus Giordani Soika, 1969 (206): 51 (Australia) [Deuterodiscoelius pseudospinosus]
puer Odynerus Giordani Soika, 1941 (067): 176 (Madagascar)
pulawskyi Labochilus Giordani Soika, 1970 (214): 83 (Egitto)
pulawskyi **soharensis** Labochilus Giordani Soika, 1979 (267): 275 (Oman)
pulchellula Antepipona Giordani Soika, 1987 (294): 167 (Namibia)
pulcherrima Stroudia Giordani Soika, 1977 (256): 126 (Provincia del Capo)
pulcherrimum **nigrithorax** Delta Giordani Soika, 1982 (281): 209 (Zaire)
pulcherrimus Eudiscoelius Giordani Soika, 1994 (315): 232 (Australia)
pulchricolor Hypalastoroides (Hypalastoroides)Giordani Soika, 1982 (277): 54 (Venezuela)
pullus Leptomenes (Eumenidiopsis) Giordani Soika, 1940 (058): 278 (S Rhodesia) [Stroudia pulla]
punctaticlypeus (Eumenes) Eumenes Giordani Soika, 1943 (085): 29 (Italia) [Eumenes punctaticlypeus]
punctaticornis Leptomenes (Eumenidiopsis) Giordani Soika, 1940 (058): 275 (S Africa) [Stroudia punctaticornis]
punctatissima Gribodia Giordani Soika, 1974 (238): 112 (Assam)
punctatissimus Pareumenes (Brachyparmenes) Giordani Soika, 1987 (294): 201 (Kenya)
punctatissimus Stenodyneriellus Giordani Soika, 1977 (258): 111 (Australia, Queensland)
punctatus var. **formosensis** Eumenes (Eumenes) Giordani Soika, 1941 (064): 144 (Formosa) [Eumenes formosensis]
punctiventris Australodynerus Giordani Soika, 1977 (258): 120 (Australia, N. S. Wales)
punctulatus Stenodyneriellus Giordani Soika, 1994 (315): 94 (Filippine)
pusilloides Australodynerus Giordani Soika, 1961 (176): 119 (W Australia)

pusilloides **impudicus** Australodynerus Giordani Soika, 1961 (176): 120 (W Australia)
pusilloides **nigriventris** Australodynerus Giordani Soika, 1993 (313): 139 (W Australia)
pyriforme **nigrocinctum** Delta Giordani Soika, 1993 (314): 161 (Is. Sumba)
pyriforme var. **novaeguineae** Eumenes (Delta) Giordani Soika, 1935 (031): 132 (Nuova Guinea) [Delta pyriforme novaeguineae]
quabosi Tachyancistrocerus Giordani Soika, 1979 (267): 278 (Oman)
quadrangolum Acarodynerus Giordani Soika, 1977 (258): 126 (Australia, N. S. Wales)
quadraticollis Alastor Giordani Soika, 1941 (068): 210 (S Rhodesia). Nota: ridescritto (come sp. nov.) da Giordani Soika, 1942 (080): 416 [Alastor (Alastorellus) quadraticollis]
quadrifasciatus **atripes** Euodynerus (Pareuodynerus) Giordani Soika, 1976 (252): 292 (Corea)
quadrinotatus Odynerus Giordani Soika, 1986 (291): 77 (India). Syn. di Stenodyneriellus wickwari (Meade Waldo, 1911)
queenslandicus Acarodynerus Giordani Soika, 1961 (176): 156 (Queensland)
quodi **hebridensis** Parodynerus Giordani Soika, 1957 (146): 217 (Nuove Ebridi)
quodi **isafui** Parodynerus Giordani Soika, 1957 (146): 217 (Nuove Ebridi). Nota: Giordani Soika attribuisce la ssp. isafui a Cheesman i. l. ma di fatto descrive la nuova ssp.
quodi lifuensis Parodynerus Giordani Soika, 1957 (146): 216 (Isole Loyalty). Nota: Giordani Soika attribuisce la spp. lifuensis a Cheesman i. l. ma di fatto descrive la nuova ssp.
quodi **malekulensis** Parodynerus Giordani Soika, 1971 (222): 79 (Nuove Ebridi)
radialis var. **revolutionalis** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 337 (SW Africa) [Antodynerus radialis revolutionalis]
radialis var. **flavozonatus** Odynerus (Rhynchium) Giordani Soika, 1940 (059): 482 (Congo) [Antodynerus radialis flavozonatus]
radialis var. **levidensis** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 337 (Uganda) [Antodynerus radialis levidensis]
raphiglossoides Leptomenes (Eumenidiopsis) Giordani Soika, 1940 (058): 280 (S Africa) [Stroudia raphiglossoides]
rauensis Eumenes (Katamenes) Giordani Soika, 1958 (152): 62 (Arabia)
rectispina Pachymenes Giordani Soika, 1943 (087): 112 (Australia). Syn. di Antamenes (Antamenes) vernalis (Saussure, 1853).
redemptus Subancistrocerus Giordani Soika, 1965 (192): 50 (Senegal)
reflexus Subancistrocerus Giordani Soika, 1994 (315): 35 (India)
reguloide Omicron Giordani Soika, 1978 (262): 69 (Messico)
regulus **cuernavacensis** Omicron Giordani Soika, 1978 (262): 141 (Messico)
reliquum Omicron Giordani Soika, 1978 (262): 188 (Bolivia)
replenus Leptochilus (Lionotulus) Giordani Soika, 1974 (244): 485 (Canarie)
rhodensiensis [sic] Labus Giordani Soika, 1944 (089): 153 (S Rhodesia). Emendato da Giordani Soika (1987: 153) [Cyrtolabulus rhodesiensis]
rhodesianus Zethus Giordani Soika, 1940 (060): 136 (S Rhodesia)
rhodesiensis **aurea** Proepipona Giordani Soika, 1983 (282): 130 (Zaire)
rhodesiensis **flavofasciata** Proepipona Giordani Soika, 1993 (282): 130 (Zaire)
rhodesiensis **ruficollis** Proepipona Giordani Soika, 1989 (300): 50 (Natal)
ricae Alastor Giordani Soika, 1934 (021): 22 (S Africa)
richardsi Leptomenes Giordani Soika, 1975 (248): 8 (Ghana)
rivalis Leptochilus (Lionotulus) Giordani Soika, 1986 (293): 95 (Marocco)
robertianus **javanus** Parancistrocerus Giordani Soika, 1994 (315): 177 (Giava)
robertianus **palawanensis** Parancistrocerus Giordani Soika, 1993 (311): 20 (Is. Filippine)
robusta **analis** Ischnocoelia Giordani Soika, 1969 (206): 91 (W Australia)
robusta **aurantiaca** Ischnocoelia Giordani Soika, 1969 (206): 91 (W Australia)

robusta **unicolor** Ischnocoelia Giordani Soika, 1969 (206): 92 (Australia centrale)
rongsharensis Pterocheilus Giordani Soika, 1977 (257): 157 (Tibet)
rotundigaster **burlinii** Odynerus (Odynerus) Giordani Soika, 1977 (257): 156 (Sicilia)
rotundipunctis Leptochilus (Lionotulus) Giordani Soika, 1977 (257): 163 (Spagna). Syn. di Leptochilus (Sarochilus) brussiloffi (Dusmet, 1917)
rubefactum Omicron Giordani Soika, 1978 (262): 171 (Panama)
rubellulum **flavellulum** Omicron Giordani Soika, 1978 (262): 91 (Perù)
rubellulum Omicron Giordani Soika, 1978 (262): 90 (Ecuador)
rubens var. **neptunus** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 298 (Capo di Buona Speranza) [Tricarinodynerus guerrinii neptunus]
rubescens Paragris Giordani Soika, 1989 (300): 20 (Yemen)
rubroclypeatus Stenodyneriellus Giordani Soika, 1994 (315): 78 (Sulawesi)
rubrofemoratus Eumenes (Eumenes) Giordani Soika, 1941 (064): 145 (Giappone)
rubroniger var. *pseudoconicus* Eumenes (Katamenes) Giordani Soika, 1949 (102): 44 (Arabia). Syn. di Katamenes jenjouristei (Kostylev, 1939)
rubropictum **nigriventre** Rhynchium Giordani Soika, 1994 (316): 50 (Indonesia)
rubropictum **tenimberense** Rhynchium Giordani Soika, 1994 (316): 49 (Indonesia)
rubrotinctus Ancistrocerus Giordani Soika, 1957 (140): 107 (Is. Canarie)
rubroviolaceus Odynerus (Rhynchium) Giordani Soika, 1941 (069): 255 (Australia, Queensland) [Paralastor rubroviolaceus]
ruficolle **schunkei** Omicron Giordani Soika, 1978 (262): 163 (Perù)
rufinodus Stenodyneriellus Giordani Soika, 1994 (315): 71 (Filippine)
rufinus **confictus** Euodynerus (Euodynerus) Giordani Soika, 1970 (214): 156 (Iran)
rufipes Apodynerus Giordani Soika, 1994 (315): 214 (Flores)
rufiscutum Omicron Giordani Soika, 1978 (262): 147 (Messico)
rufoflavus **somalus** Tricarinodynerus Giordani Soika, 1989 (300): 48 (Somalia)
rufoniger Paraleptomenes Giordani Soika, 1994 (315): 131 (Sikkim)
rufus Microdynerus Giordani Soika, 1971 (223): 114 (Spagna)
rusticum Omicron Giordani Soika, 1978 (262): 192 (Messico)
sabahensis Kennethia Giordani Soika, 1994 (315): 293 (Borneo)
saganensis **corruptus** Omicrabulus Giordani Soika, 1987 (294): 154 (Kenya)
saganensis Labus Giordani Soika, 1944 (089): 154 (Etiopia) [Omicrabulus saganensis saganensis]
saharensis Labus Giordani Soika, 1952 (119): 25 (Hoggar) [Cyrtolabulus saharensis]
saharensis Odynerus (Rynchium) Giordani Soika, 1934 (019): 42. Nota: nom. nov. per Odynerus gestroi Dusmet, 1929 nec Odynerus gestroi Magretti, 1884. [Eremodynerus saharensis]
salzi Pseudepipona (Euodynerus) Giordani Soika, 1952 (119): 42 (Palestina) [Euodynerus salzi]
samariensis Pareumenes (Pseumenes?) Giordani Soika, 1941 (069): 220 (Filippine)
samurayi *rufescens* Eumenes Giordani Soika, 1973 (233): 127 (Giappone). Syn. di Eumenes micado Cameroon, 1904
sanctus Pseudomicrodynerus Giordani Soika, 1952 (119): 54 (Palestina). Syn. di Microdynerus (Pseudomicrodynerus) anatolicus (Blüthgen, 1938).
sansibaricus **arabicus** Pareumenes (Pareumenes) Giordani Soika, 1981 (272): 116 (S Arabia)
sansibaricus **flavopetiolatus** Pareumenes Giordani Soika, 1979 (265): 244 (Niger)
sansibaricus **laetefasciatus** Pareumenes Giordani Soika, 1944 (089): 157 (Somalia)
sansibaricus **laterorufofasciatus** Pareumenes Giordani Soika, 1944 (089): 158 (Delagoa)
sansibaricus **occidentalis** Pareumenes Giordani Soika, 1944 (089): 158 (SW Africa)
sapidus Stenodynerus Giordani Soika, 1970 (214): 110 (Iran)
sauditus Trachyodynerus Giordani Soika, 1989 (300): 62 (Saudi Arabia)
saundersi **nigropetiolatus** Microdynerus Giordani Soika, 1986 (293): 93 (Marocco)

schatzmayri Odynerus (Leptochilus) Giordani Soika, 1938 (044): 13 (Sinai) [Leptochilus (Neoleptochilus) schatzmayri]
schneideri Pachymenes Giordani Soika, 1943 (087): 108 (Nuova Guinea) [Irianmenes schneideri]
schremmeri Cyphomenes Giordani Soika, 1978 (262): 223 (Colombia)
schrottkyi *reductus* Hypalastoroides Giordani Soika, 1958 (151): 51 (Costarica). Syn. di Hypalastoroides (Hypalastoroides) mexicanus (Saussure, 1871).
schultessi **angolensis** Parachilus Giordani Soika, 1987 (294): 132 (Angola)
schulthessianus Alastor Giordani Soika, 1934 (021): 7 (SW Africa) [Alastor (Alastorellus) schulthessianus]
schulthessianus **baidoensis** Alastor Giordani Soika, 1983 (282): 99 (Somalia) [Alastor (Alastorellus) baidoensis]
scotti Pseudonortonia Giordani Soika, 1957 (150): 475 (Yemen)
scottianus Odynerus (Rhynchium) Giordani Soika, 1940 (059): 484 (Etiopia). Nota: nomen novum per Odynerus mutabilis Giordani Soika, 1937, nec Saussure, 1863
scutellaris Antepipona Giordani Soika, 1985 (287): 53 (Provincia del Capo)
scutellaris **pallidior** Antepipona Giordani Soika, 1985 (287): 54 (Provincia del Capo)
semiaethiopica Odynerus (Rhynchium) Giordani Soika, 1943 (084): 9 (Is. Capo Verde) [Euodynerus semiaethiopicus]
semidantici Pseudepipona (Euodynerus) Giordani Soika, 1952 (119): 47 (Palestina) [Euodynerus semidantici]
semiplanus Alphamenes Giordani Soika, 1978 (262): 353 (Perù)
sempti Pterochilus Giordani Soika, 1943 (085): 41 (Algeria)
senegalensis Parachilus Giordani Soika, 1987 (294): 133 (Senegal)
senegalensis var. *neghelliensis* Odynerus (Rhynchium) Giordani Soika, 1939 (057): 87 (E Africa). Syn. di Antepipona senegalensis (Saussure, 1953)
senegalensis Zethus Giordani Soika, 1979 (264): 48 (Senegal)
septemfasciatus **flavithorax** Lissodynerus Giordani Soika, 1994 (315): 316 (Sumatra)
septemfasciatus var. **feanus** Ancistrocerus (Ancistrocerus) Giordani Soika, 1941 (069): 239 (Birmania) [Lissodynerus septemfasciatus feanus]
septentrionalis Eumenes Giordani Soika, 1940 (062): 98 (Siberia)
septentrionalis **khangmarensis** Eumenes Giordani Soika, 1966 (198): 98 (S Tibet)
septentrionalis Raphiglossa Giordani Soika, 1989 (301): 27 (Togo)
serenus Ancistrocerus (Subancistrocerus) Giordani Soika, 1935 (030): 177 (Egitto) [Tachyancistrocerus serenus]
sexfasciata Antepipona Giordani Soika, 1986 (293): 128 (Cina)
sexpunctata **rufella** Stroudia Giordani Soika, 1989 (300): 28 (Angola)
sexpunctatus Leptomenes (Eumenidiopsis) Giordani Soika, 1943 (085): 35 (S Rhodesia) [Stroudia sexpunctata sexpunctata]
sexspinosus Cyrtolabulus Giordani Soika, 1977 (257): 166 (Egitto)
seyrigi Labus Giordani Soika, 1934 (018): 215 (Madagascar) [Cyrteumenes seyrigi]
seyrigi Odynerus Giordani Soika, 1941 (067): 172 (Madagascar) [Antepipona seyrigi]
seyrigi Zethus Giordani Soika, 1940 (060): 137 (Madagascar) [Zethus (Madecazethus) seyrigi]
shantungensis Antepipona Giordani Soika, 1993 (314): 154 (Cina)
sheffieldi **bellatuloides** Antodynerus Giordani Soika, 1989 (301): 49 (Senegal)
sheffieldi var. **citreobimaculatus** Odynerus (Rhynchium) Giordani Soika, 1942 (074): 246 (Katanga) [Antodynerus sheffieldi citrobimaculatus]
sheffieldi var. **cyclops** Odynerus (Rhynchium) Giordani Soika, 1942 (074): 247 (Katanga) [Antodynerus sheffieldi cyclops]
sheffieldi var. **imperialis** Odynerus (Rhynchium) Giordani Soika, 1942 (074): 247 (Eritrea)

[Antodynerus sheffieldi imperialis]
sheffieldi var. **perarduus** Odynerus (Rhynchium) Giordani Soika, 1942 (074): 246 (SW Africa)
[Antodynerus sheffieldi perardus]
sheffieldi var. **tridotatus** Odynerus (Rhynchium) Giordani Soika, 1942 (074): 244 (Rhodesia)
[Antodynerus sheffieldi tridotatus]
shirazensis Euodynerus Giordani Soika, 1970 (214): 162 (Iran)
siamensis Antepipona Giordani Soika, 1982 (279): 242 (Thailandia)
siamensis **philippinensis** Antepipona Giordani Soika, 1993 (314): 153 (Filippine)
sichelii **coranicus** Katamenes Giordani Soika, 1970 (214): 177 (Arabia Saudita)
sichelii **hispanicus** Katamenes Giordani Soika, 1966 (197): 95 (Spagna)
sichelii **pseudofulvus** Katamenes Giordani Soika, 1966 (196): 88 (Asia centrale)
sichelii **tauriae** Eumenes (Katamenes) Giordani Soika, 1958 (152): 63 (Taurus) [Katamenes sichelii tauriae]
sichelii **timanensis** Katamenes Giordani Soika, 1986 (293): 123 (Medio Oriente: Timan)
sichelii var. **biblicus** Eumenes Giordani Soika, 1935 (030): 167 (Sinai) [Katamenes sichelii biblicus]
sichelii var. *fulvoides* Eumenes (Katamenes) Giordani Soika, 1949 (102): 43 (senza esatta località: S Russia?). Syn. di Katamenes sichelii fulvus (Eversmann, 1854)
sichelii var. *luristanensis* Eumenes (Katamenes) Giordani Soika, 1949 (102): 44 (Iran). Syn. di Katamenes sichelii fulvus (Eversmann, 1854)
signiferus Odynerus (Rhynchium) Giordani Soika, 1935 (025): 6 (Mozambico) [Antodynerus signiferus]
sikkimensis Eumenes Giordani Soika, 1986 (291): 80 (Sikkim)
similis **negrosensis** Subancistrocerus Giordani Soika, 1994 (315): 40 (Filippine)
similis Subancistrocerus Giordani Soika, 1994 (315): 39 (Filippine)
simillimus Alastor Giordani Soika, 1983 (282): 98. Nota: nom. nov. per Alastor persimilis Giordani Soika, 1950 nec Bréthes, 1902
simillimus Leptomenes (Eumenidiopsis) Giordani Soika, 1940 (058): 282 (S Africa) [Stroudia simillima]
simillimus Lissodynerus Giordani Soika, 1994 (315): 324 (Is. Solomon)
simplicilamellatus Eumenes (Eumenes) Giordani Soika, 1935 (031): 124 (Nuova Guinea)
simplicissima Stroudia Giordani Soika, 1977 (256): 134 (Lesotho)
socotrae Postepipona Giordani Soika, 1974 (240): 78 (Socotra)
sollicitus Labus Giordani Soika, 1941 (068): 181 (Madagascar) [Cyrtolabulus sollicitus]
solomon Eudiscoelius Giordani Soika, 1994 (315): 236 (Is. Solomon)
solomon Lissodynerus Giordani Soika, 1994 (315): 323 (Is. Solomon)
solomonis Subancistrocerus Giordani Soika, 1981 (275): 169 (Is. Salomon)
solomonis **gizensis** Subancistrocerus Giordani Soika, 1981 (275): 169 (Is. Salomon)
solstitialis **frogna** Antepipona Giordani Soika, 1985 (287): 124 (Lesotho)
somala Pseudonortonia Giordani Soika, 1989 (300): 40 (Somalia)
somalicus Antodynerus Giordani Soika, 1989 (300): 62 (Somalia)
somalicus Leptochilus (Euleptochilus) Giordani Soika, 1987 (298): 1 (Somalia)
somalus Chlorodynerus Giordani Soika, 1957 (144): 143 (Somalia)
spargovillensis Odynerus (Stenodynerus) Giordani Soika, 1937 (041): 359 (W Australia) [Acarodynerus spargovillensis]
spectrum Acarodynerus Giordani Soika, 1961 (176): 155 (NW Australia)
spinicollis Subancistrocerus Giordani Soika, 1994 (315): 24 (Borneo)
spinicornis Stroudia Giordani Soika, 1977 (256): 131 (Provincia del Capo)
spinigera **empeyi** Paravespa (Gestrodynerus) Giordani Soika, 1983 (282): 97 (Transvaal)
spinithorax Cyrtolabus Giordani Soika, 1968 (202): 115 (Sahara centrale) [Cyrtolabulus spi-

nithorax]
spinithorax Subancistrocerus Giordani Soika, 1994 (315): 23 (Filippine)
spinosiusculus Stenodyneriellus Giordani Soika, 1961 (176): 74 (Australia, Queensland)
splendens Omicron (Omicron) Giordani Soika, 1978 (262): 72 (Colombia)
splendens Pseudepipona (Xanthodynerus) Giordani Soika, 1957 (144): 147 (Transcaspia) [Euodynerus (Xanthodynerus) splendens]
spoliatus **ferruginatus** Antodynerus Giordani Soika, 1983 (282): 137 (Transvaal)
stellenboschensis **nigricolor** Stellepipona Giordani Soika, 1989 (300): 51 (Zimbabwe)
stenosoma Leptomenes (Eumenidiopsis) Giordani Soika, 1941 (068): 191 (Somalia) [Stroudia stenosoma]
stevensoni Leptomenes Giordani Soika, 1977 (256): 111 (S Rhodesia)
stevensoni *marginaticollis* Ancistrocerus (Ancistrocerus) Giordani Soika, 1939 (053): 98 (Kenya). Syn. di Ancistrocerus neuvillei (Buysson, 1906)
stevensonianus Odontodynerus Giordani Soika, 1963 (185): 143 (S Rhodesia) [Antepipona stevensoniana]
stevensonianus Odynerus (Rhynchium) Giordani Soika, 1942 (074): 249 (S Rhodesia)
stigma **arabica** Pseudepipona (Euodynerus) Giordani Soika, 1957 (150): 478 (Oman)
striatella Stroudia Giordani Soika, 1977 (256): 139 (Lesotho)
striatelloides Stroudia Giordani Soika, 1977 (256): 140 (Lesotho)
striativentris **dissimilis** Ancistrocerus Giordani Soika, 1974 (236): 308 (Kenya)
striativentris **elgonensis** Ancistrocerus Giordani Soika, 1960 (163): 157 (Kenya)
striativentris Leptomenes (Eumenidopsis) Giordani Soika, 1940 (058): 269 (S Africa) [Eumenidiopsis striativentris]
stridens Synagris (Paragris) Giordani Soika, 1987 (294): 138 (Zambia)
subcarinatus Odynerus (Rhynchium) Giordani Soika, 1939 (057): 91 (E Africa). Syn. di Ovodynerus yngvei (Cameron, 1910)
sublamellatus Stenodyneriellus Giordani Soika, 1994 (315): 68 (Borneo)
submissus Alastor Giordani Soika, 1983 (282): 99 (S Africa)
suboscurus Labus Giordani Soika, 1941 (068): 183 (Madagascar) [Cyrtolabulus suboscurus]
subtilis Leptomenes (Eumenidiopsis) Giordani Soika, 1939 (046): 91 (Natal) [Eumenidiopsis subtilis]
subtruncatula Pararaphidoglossa Giordani Soika, 1978 (262): 318 (Colombia)
subventricosus Odynerus Giordani Soika, 1941 (067): 177 (Madagascar)
succincta **purgata** Pseudepipona Giordani Soika, 1977 (258): 115 (W Australia)
sudanensis Antepipona Giordani Soika, 1985 (287): 104 (Sudan)
sulcatus Parancistrocerus Giordani Soika, 1994 (315): 179 (Thailandia)
sulcifer Alastor Giordani Soika, 1934 (021): 9 (Zululand) [Alastor (Alastorellus) sulcifer]
sulcithorax Eustenancistrocerus (Eustenancistrocerus) Giordani Soika, 1970 (214): 93 (Iran)
sulciventris Leptochilus (Lionotulus) Giordani Soika, 1977 (257): 158 (Israele). Syn di Odynerus (Lionotulus) schatmayri Giordani Soika, 1938
sumatrensis Labus Giordani Soika, 1991 (305): 163 (Sumatra)
superbus Pseudalastor Giordani Soika, 1977 (258): 124 (Australia, Northern Territory)
superficiale *impurum* Pirhosigma Giordani Soika, 1978 (262): 239 (Argentina). Syn. di Pirhosigma superficiale (Fox, 1899)
synagroide [sic] **cariosum** Anterhynchium Giordani Soika, 1987 (294): 199 (Somalia)
synagroides var. **argenteopilosellus** Odynerus (Rhynchium) Giordani Soika, 1937 (043): 322 (Mozambico) [Anterhynchium synagroides argenteopilosellum]
syriacus Cyrtolabus Giordani Soika, 1968 (202): 120 (Siria) [Cyrtolabulus syriacus]
syriacus Tachyancistrocerus Giordani Soika, 1970 (214): 87 (Siria)

tamaninum [sic] **septentrionale** Anterhynchium (Epiodynerus) Giordani Soika, 1993 (313): 145 (Australia, Northern Territory)
tamarinus **inviolatus** Epiodynerus Giordani Soika, 1977 (258): 118 (Australia, N. S. Wales)
tarsatellus Leptochilus (Lionotulus) Giordani Soika, 1970 (214): 73 (Libano)
tarsatiformis Odynerus (Leptochilus) Giordani Soika, 1943 (084): 14 (Palestina) [Leptochilus (Lionotulus) tarsatiformis]
tasmaniae Pachymenes Giordani Soika, 1943 (087): 113 (Tasmania) [Antamenes (Antamenes) tasmaniae]
tasmaniensis Australozethus Giordani Soika, 1969 (206): 31 (Tasmania)
tasmaniensis **montanus** Pseudozethus Giordani Soika, 1969 (206): 35 (Queensland) [Australozethus tasmaniensis montanus]. Nota: la descrizione originale come Pseudozethus è dovuta ad un lapsus dell'autore
tassiliensis Leptochilus Giordani Soika, 1954 (124): 34 (Tassili d'Ajjer) [Leptochilus (Neoleptochilus) tassiliensis]
tectus var. **inclinans** Odynerus (Rhynchium) Giordani Soika, 1935 (030): 187 (Egitto) [Euodynerus (Knemodynerus) rhynchoides inclinans]
tectus var. **sinaiticus** Odynerus (Rhynchium) Giordani Soika, 1939 (055): 6 (Sinai) [Euodynerus (Knemodynerus) sinaiticus]
tegularis Stenodyneriellus Giordani Soika, 1994 (315): 66 (Borneo)
tegulata Pseudonortonia Giordani Soika, 1989 (300): 42 (S Africa)
tenuissimus Ischnogasteroides Giordani Soika. Nuovo nome per Eumenes (Ischnogasteroides) gracillimus Giordani Soika, 1941 (072): 98, già occupato da Eumenes gracillima Tullgren, 1904. Non ci è stato possibile accertare in quale pubblicazione è stato proposto questo nome sostitutivo, peraltro utilizzato da Giordani Soika, 1979 (267): 285
tertius Pterocheilus Giordani Soika, 1970 (214): 45 (Siria)
teta Pterochilus Giordani Soika, 1943 (085): 40 (Palestina). [Pterocheilus (Onychopterocheilus) daw teta]
thomensis Odynerus (Rhynchium) Giordani Soika, 1942 (074): 228 (Is. S. Thomé)
tibestica Raphiglossa Giordani Soika, 1974 (238): 125 (Tibesti). Nota: ridescritta (come sp. nov.) da Giordani Soika, 1974 (242): 125
tibetanus Ancistrocerus Giordani Soika, 1966 (198): 106 (S Tibet)
tibetanus Leptochilus Giordani Soika, 1966 (198): 99 (S Tibet) [Leptochilus (Neoleptochilus) tibetanus]
tieshengi Leptomicrodynerus Giordani Soika, 1985 (289): 37 (Cina)
timaditensis Leptochilus (Leptochilus) Giordani Soika, 1952 (120): 266 (Marocco) [Microdynerus timaditensis]
torre-tassoi Odynerus (Leptochilus) Giordani Soika, 1938 (044):12 (Egitto) [Leptochilus (Lionotulus) torretassoi torretassoi]
tosawae Eumenes Giordani Soika, 1941 (064): 141 (Formosa)
tosawae **lofouensis** Eumenes Giordani Soika, 1973 (233): 127 (China)
transitorius *hoberlandti* Eustenancistrocerus Giordani Soika, 1951 (117): 378 (Anatolia). Syn. di Eustenancistrocerus (Parastenancistrocerus) amadanensis (Saussure, 1855)
transitorius **mauritaniensis** Eustenancistrocerus Giordani Soika, 1952 (120): 246 (Marocco). [Eustenancistrocerus (Parastenancistrocerus) amadanensis mauritaniensis]
transversus Cyrtolabulus Giordani Soika, 1987 (294): 149 (Senegal)
triangularis Labus Giordani Soika, 1944 (089): 154 (S Africa) [Omicrabulus triangularis]
tricolor Pseudochilus Giordani Soika, 1987 (294): 125 (Uganda)
tricolor Stroudia Giordani Soika, 1992 (309): 47 (Provincia del Capo)
tricoloratus Stenodyneriellus Giordani Soika, 1961 (176): 78 (Australia, Queensland)

triconcavus Parancistrocerus Giordani Soika, 1994 (315): 188 (S Sulawesi)
triconcavus **rufipes** Parancistrocerus Giordani Soika, 1994 (315): 189 (Is. Sumba)
tridens Antamenes Giordani Soika, 1994 (315): 223 (Nuova Guinea)
tridens **trifasciatus** Antamenes Giordani Soika, 1994 (315): 224 (Nuova Guinea)
tridentatus Antamenes Giordani Soika, 1994 (315): 222 (Nuova Guinea)
tridentatus Pseudalastor Giordani Soika, 1961 (176): 134 (Australia, Northern Territory)
tridentatus **paganus** Pseudalastor Giordani Soika, 1977 (258): 123 (Australia, Queensland)
tridentatus **septentrionalis** Pseudalastor Giordani Soika, 1977 (258): 123 (Australia, Northern Territory)
tridentatus **transgrediens** Pseudalastor Giordani Soika, 1977 (258): 123 (Australia, Queensland)
trilaminatus Lissodynerus Giordani Soika, 1994 (315): 309 (Bachian)
trimaculatus Stenodyneriellus Giordani Soika & Kojima, 1988 (299): 179 (Papua Nuova Guinea)
tripunctatus *convergens* Odynerus (Rhynchium) Giordani Soika, 1935 (030): 192 (Heliopolis). Nota: O. tripunctatus sarebbe syn. di Pseudepipona nekt (Giordani Soika, 1943) a sua volta syn di Pseudepipona przewalskyi (Morawitz, 1885). Giordani Soika, 1943 (85): 37 dice che forse è var. di nekt. Syn. di Pseudepipona nekt in VAN DER VECHT & FISCHER, 1972
tripunctatus Xanthodynerus Giordani Soika, 1989 (300): 54 (Somalia)
tristis Subancistrocerus Giordani Soika, 1992 (309): 50 (Is. Mauritius)
troglodytes **baliensis** Pachymenes Giordani Soika, 1987 (296): 145 (Bali) [Apodynerus troglodytes baliensis]
troglodytes **shanensis** Apodynerus Giordani Soika, 1994 (315): 213 (Burma)
tuberculivertex Odontodynerus Giordani Soika, 1963 (185): 145 (Gabon). Syn. di Antepipona squamigera (Fabricius, 1804)
turbulenta Antepipona Giordani Soika, 1989 (300): 58 (Tchad)
turneriellus Stenodyneriellus Giordani Soika, 1961 (176): 73 (Australia, Queensland)
tussaci Cyrtolabulus Giordani Soika, 1989 (300): 34 (Senegal)
tussaci Leptochilus (Neoleptochilus) Giordani Soika, 1986 (293): 108 (Marocco)
ugandensis (Leptomenes) Leptomenes Giordani Soika, 1940 (058): 268 (Uganda)
uncatum **bugandanum** Anterhynchium Giordani Soika, 1987 (294): 196 (Uganda)
uncinata Pseudonortonia Giordani Soika, 1989 (301): 36 (Gabon)
unguiculatus var. **libanicus** Eumenes Giordani Soika, 1941 (072): 106 (Libano). Nota: in Giordani Soika, 1970 (214): 174 "libanense". [Delta unguiculatum libanicum]
unguiculatus var. **mauritanicus** Eumenes Giordani Soika, 1941 (072): 106 (Marocco) [Delta unguiculatum mauritanicum]
unica Pseudepipona (Euodynerus) Giordani Soika, 1952 (120): 249 (Marocco). Syn. di Euodynerus variegatus variegatus (Fabricius, 1793)
unicornis Antamenes Giordani Soika, 1994 (315): 225 (Nuova Guinea)
unicornis **flaviculus** Antamenes Giordani Soika, 1994 (315): 226 (Nuova Guinea)
unipunctatus Australodynerus Giordani Soika, 1993 (313): 139 (Australia, Northern Territory)
unipunctatus Stenodyneriellus Giordani Soika, 1995 (318) 96 (Nuova Guinea)
urundiensis Labus Giordani Soika, 1955 (127): 364 (Urundi). Syn. di Micreumenes adelphus (Meade Waldo, 1911)
valdiviensis Discoelius Giordani Soika, 1958 (156): 86 (Chile)
vandervechti Labus Giordani Soika, 1958 (156): 83 (W Soembawa)
variabilis Lissepipona Giordani Soika, 1994 (315): 285 (Sulawesi)
variegata **mongolica** Pseudepipona Giordani Soika, 1970 (217): 330 (Mongolia)
variegatus **semiticus** Odynerus (Tropidodynerus) Giordani Soika, 1952 (119): 57 (Palestina) [Tropidodynerus flavus semiticus]
variepunctatus Eumenes (Eumenes) Giordani Soika, 1941 (064): 153 (Asia centr.). Nota: ride-

scritta (come sp. nov.) da Giordani Soika, 1958 (156): 88.
vastator Anterhynchium Giordani Soika, 1983 (282): 145 (Mozambico)
vatondrangyensis Odynerus Giordani Soika, 1941 (067): 179 (Madagascar)
vechti Epsilon Giordani Soika, 1994 (315): 283 (Sulawesi)
venezuelanus Hypalastoroides Giordani Soika, 1958 (151): 52 (Venezuela) [Hypalastoroides (Hypalastoroides) venezuelanus]
vergesi Nannodynerus Giordani Soika, 1961 (172): 373 (Spagna). Syn. di Stenodynerus difficilis ferrugineitarsis (De Stefani, 1883)
verhoeffi Antepipona Giordani Soika, 1985 (287): 97 (Provincia del Capo)
vescovilis Antepipona Giordani Soika, 1970 (214): 116 (Iran)
vexatum Omicron Giordani Soika, 1978 (262): 155 (Brasile)
vicinus Parancistrocerus Giordani Soika, 1994 (315): 194 (India)
victor Paralastor Giordani Soika, 1977 (258): 135 (S Australia)
villiersi Odontodynerus Giordani Soika, 1963 (185): 144 (Senegal) [Antepipona villiersi]
vinciguerrae **pallidulus** Allodynerus Giordani Soika, 1970 (218): 151 (deserto del Nubia)
violaceipennis Paravespa (Gestrodynerus) Giordani Soika, 1960 (168): 372 (SW Africa). Nota: ridescritta (come sp. nov.) da Giordani Soika, 1961 (171): 444
violaceipennis Symmorphus Giordani Soika, 1968 (198): 102 (Sikkim)
violaceus Eumenes (Afreumenes) Giordani Soika, 1941 (072): 107 (Transvaal) [Afreumenes violaceus]
violaceus **paramelanosoma** Afreumenes Giordani Soika, 1968 (201): 39 (Uganda)
violaceus **rugosopunctatus** Afreumenes Giordani Soika, 1968 (201): 37 (Kenya)
violaceus **trifasciatus** Afreumenes Giordani Soika, 1987 (294): 210 (S Africa)
viridipennis Calligaster Giordani Soika, 1958 (154): 74 (Celebes)
viridipennis Pseudozumia Giordani Soika, 1958 (156): 92 (Celebes)
viridipictus Odynerus Giordani Soika, 1941 (067): 178 (Madagascar)
volitans Odynerus (Leptochilus) Giordani Soika, 1941 (071): 12 (Tunisia). Syn. di Leptochilus brussiloffi (Dusmet, 1917)
vorticosus Pachymenes Giordani Soika, 1943 (087): 110 (Australia) [Antamenes (Antamenes) vorticosus]
wallacei var. **paulonotata** Pseudozumia Giordani Soika, 1941 (066): 167 (Is. Hainan)
wellmanoides Odynerus (Rhynchium) Giordani Soika, 1940 (059): 484 (Katanga). Nota: nomen novum per Odynerus wellmani sensu Giordani Soika, 1937 (043): 350 nec Odynerus wellmani Meade Waldo, 1910 [Antodynerus wellmanoides]
wilhelmi Lissodynerus Giordani Soika, 1996 (322): 37 (Nuova Guinea)
willowmorensis Ovodynerus Giordani Soika, 1985 (287): 139 (Provincia del Capo)
willowmorensis **erlandssoni** Ovodynerus Giordani Soika, 1987 (294): 172 (Namibia)
wolffi Alastorynerus Giordani Soika, 1974 (244): 480 (Canarie). Syn. di Alastorynellus rubescens Gusenleitner, 1973
xanthurum **fidum** Delta Giordani Soika, 1993 (314): 162 (Is. Loyalty)
xanthurum **vilense** Eumenes (Delta) Giordani Soika, 1957 (146): 203 (Nuove Ebridi) [Delta xanthurum vilense]
xanthurus **aneityensis** Eumenes (Delta) Giordani Soika, 1957 (146): 202 (Nuove Ebridi) [Delta xanthurum aneityense]
xanthurus **erromangensis** Eumenes (Delta) Giordani Soika, 1957 (146): 203 (Nuove Ebridi) [Delta xanthurum erromangense]
xanthus Paralastor Giordani Soika, 1977 (258): 134 (W Australia)
xerophilus **meesi** Paralastor Giordani Soika, 1977 (258): 134 (W Australia)
yachowensis **konkunensis** Parancistrocerus Giordani Soika, 1994 (315): 162 (Taiwan)

yachowensis Parancistrocerus Giordani Soika, 1986 (293): 125 (Cina)
yamanei Ancistrocerus Giordani Soika, 1986 (293): 148 (Giappone). Syn. di Ancistrocerus oviventris oviventris (Wesmael, 1836)
yanchepensis Australodynerus Giordani Soika, 1961 (176): 121 (W Australia) [Stenodyneriellus yanchepensis]
yanchepensis **nigrithorax** Australodynerus Giordani Soika, 1961 (176): 122 (S Australia) [Stenodyneriellus yachepensis nigrithorax]
yarrowi Zethus Giordani Soika, 1979 (264): 50 (SW Africa)
yayeyamensis **quadricolor** Apodynerus Giordani Soika, 1994 (315): 215 (Sumba)
yemenensis Odontodynerus Giordani Soika, 1957 (150): 480 (Yemen) [Antepipona yemenensis]
ypsilon Omicron Giordani Soika, 1978 (262): 92 (Bolivia)
yunnanensis Anterhynchium (Dirhynchium) Giordani Soika, 1973 (233): 121 (China)
zairensis var. **ferrugineopetiolatus** Ancistrocerus Giordani Soika, 1934 (017): 368 (Guinea portoghese)
zavattarianus Odynerus (Rhynchium) Giordani Soika, 1944 (089): 170 (Africa orientale) [Pseudepipona (Syneuodynerus) zavattariana]
zavattarii Labus Giordani Soika, 1939 (057): 79 (E Africa) [Cyrtolabulus zavattarii]
zethiformis Labus Giordani Soika, 1958 (156): 83 (Somalia)

Fam. **Masaridae**

araxana Quartinia Giordani Soika, 1960 (162): 133 (Caucaso). Syn. di Quartinia soika Richards, 1962
beaumonti Paraceramius Giordani Soika, 1957 (139): 168 (Marocco) [Ceramius beaumonti]
brasiliensis Paramasaris Giordani Soika, 1974 (241): 105 (Brasile)
cerceroides Gayella Giordani Soika, 1958 (156): 82 (NW Patagonia). Syn. di Gayella patagonica Willink, 1956.
cupreus Paramasaris Giordani Soika, 1974 (241): 106 (Columbia)
halicticeps Quartinia Giordani Soika, 1939 (056): 12 (Egitto)
hoggarica Jugurthia Giordani Soika, 1954 (124): 20 (Hoggar). Syn di Jugurtia jemenensis Kostylev, 1935
jousseaumei *asrensis* Celonites Giordani Soika, 1957 (150): 472 (Yemen). Syn. di Celonites jousseaumeri du Buysson, 1906
maroccanus Paraceramius Giordani Soika, 1957 (139): 170 (Marocco) [Ceramius maroccanus]
mochii Quartinia Giordani Soika, 1939 (056): 10 (Egitto)
mutilloides *nigerrima* Gayella Giordani Soika, 1958 (156): 80 (Cile). Syn. di Gayella mutilloides Saussure, 1855
ochracea Quartinia Giordani Soika, 1939 (056): 14 (Egitto). Syn. di Quartinia thebaica du Buysson, 1902
palaestinensis Paraceramius Giordani Soika, 1957 (139): 172 (Palestina) [Ceramius palaestinensis]
richardsi Paragayella Giordani Soika, 1974 (241): 101 (Brasile) [Paramasaris richardsi]
tricolorata Quartinia Giordani Soika, 1954 (124): 22 (Egitto)
tuareg Quartinia Giordani Soika, 1954 (124): 21 (Hoggar)
vespiformis **arabicus** Masaris Giordani Soika, 1957 (150): 472 (Arabia saudita) [Masaris aegyptiacus arabicus]
yemenensis Celonites Giordani Soika, 1957 (150): 472 (Yemen)
zavattarii Celonites Giordani Soika, 1944 (089): 149 (Etiopia)

Fam. **Vespidae**

abyssinicus **adenensis** Belonogaster Giordani Soika, 1957 (150): 484 (Western Aden Protectorate)

[Belonogaster adenensis adenensis]
aethiopica **bimaculata** Ropalidia Giordani Soika, 1981 (276): 172 (Tanzania)
canadensis *trinitatis* Polistes Giordani Soika, 1965 (191): 27 (Piccole Antille - Is. Trinité). Syn di Polistes lanio lanio (Fabricius, 1775)
crassipunctata Ropalidia Giordani Soika, 1981 (276): 172 (Camerun)
excavata Ropalidia Giordani Soika, 1977 (260): 128 (Camerun)
foederatus *albellus* Polistes (Polistes) Giordani Soika, 1976 (253): 272 (Mongolia) Syn di Polistes gallicus Linnaeus, 1767
griseus **arabicus** Belonogaster Giordani Soika, 1957 (150): 484 (W Aden) [Belonogaster arabica]
hebridensis **erromangensis** Polistes Giordani Soika, 1981 (273): 118 (Nuove Ebridi)
hebridensis hebridensis Polistes Giordani Soika, 1981 (273): 117 (Nuove Ebridi)
hebridensis **malekulensis** Polistes Giordani Soika, 1981 (273): 119 (Nuove Ebridi)
hebridensis **vilensis** Polistes Giordani Soika, 1981 (273): 119 (Nuove Ebridi)
humilis **centrocontinentalis** Polistes Giordani Soika, 1975 (247): 20 (Australia centrale)
humilis *clarior* Polistes Giordani Soika, 1975 (247): 22 (Australia, N Queensland). Syn di Polistes humilis synoecus Saussure, 1853
humilis *pseudoscach* Polistes Giordani Soika, 1975 (247): 21 (Australia, N. S. Wales). Syn di Polistes humilis humilis (Fabricius, 1781)
humilis *xanthorrhoicus* Polistes Giordani Soika, 1975 (247): 21 (Australia, Queensland). Syn di Polistes humilis synoecus Saussure, 1853
insepultus Polistes (Polistes) Giordani Soika, 1976 (252): 287 (Corea). Syn. di Polistes chinensis antennalis (Perez, 1905).
japonica **pionganensis** Vespula (Vespula) Giordani Soika, 1976 (252): 290 (Corea)
laevigatissimus Polistes Giordani Soika, 1975 (247): 25 (NW Australia)
marginalis *arabicus* Polistes Giordani Soika, 1957 (150): 482 (W Aden). Syn. di Polistes (Polistes) marginalis (Fabricius, 1775)
marginalis **baidoensis** Polistes Giordani Soika, 1944 (089): 177 (Africa orientale)
marginalis **lindensis** Polistes Giordani Soika, 1981 (276): 174 (Tanzania)
marginalis **meruensis** Polistes Giordani Soika, 1981 (276): 173 (Africa orientale)
nilssoni Ropalidia Giordani Soika, 1991 (306): 83 (Madagascar)
novissima Ropalidia Giordani Soika, 1944 (089): 176 (Africa orientale)
obscurior Ropalidia Giordani Soika, 1991: 89 (Madagascar)
occidentalis *invertita* Polybia Giordani Soika, 1965 (191): 30 (Costa Rica). Syn di Polybia bohemani Holmgren, 1868
occidentalis *uruguayensis* Polybia Giordani Soika, 1965 (191): 30 (Uruguay). Syn. di Myrapetra scutellaris White, 1841
occidentalis **venezuelana** Polybia Giordani Soika, 1965 (191): 29 (Venezuela) [Polybia (Myrapetra) occidentalis venezuelana]
omissus *kaszabi* Polistes Giordani Soika, 1970 (217): 327 (Mongolia). Syn di Polistes gallicus (Linnaeus, 1767)
orientalis *arabica* Vespa Giordani Soika, 1957 (150): 482 (W Aden). Syn. di Vespa orientalis somalica Giordani Soika, 1934
orientalis **somalica** Vespa Giordani Soika, 1934: 184 (Somalia)
parvula *pseudospilonota* Polybia Giordani Soika, 1965 (191): 28 (Costa Rica). Syn di Polybia bohemani Holmgren, 1868
richardsi Polistes Giordani Soika, 1975 (247): 23 (Australia, Northern Territory). Syn. di Polistes stigma bernardii Guillou, 1841
sgarambus Polistes Giordani Soika, 1975 (247): 24 (Australia, Northern Territory)
tenellus **lahejensis** Polistes Giordani Soika, 1981 (276): 175 (Arabia)

tenellus **minutissimus** Polistes Giordani Soika, 1981 (276): 174 (Etiopia)
townsvillensis Polistes Giordani Soika, 1975 (247): 22 (Australia, Queensland) [Polistes stigma townsvillensis]
unidentata Ropalidia Giordani Soika, 1981 (276): 172 (Tanzania)

Fam. **Sphecidae**

asmarensis Philanthus Arnold in Giordani Soika, 1939 (053): 101 (Eritrea)
brunneofasciata Ampulex Giordani Soika, 1939 (053): 103 (Eritrea)
congesta Cerceris Giordani Soika, 1942 (081): 203 (Somalia). Syn di Cerceris tricolorata Spinola, 1838
flavobilineolata Cerceris Giordani Soika, 1942 (081): 199 (Tanganica). Syn di Cerceris aterrima Arnold, 1942
guigliae Cerceris Giordani Soika, 1942 (081): 204 (Eritrea)
longitudinalis Cerceris Giordani Soika, 1942 (081): 206 (Somalia)
migiurtinicus Sphex (Chlorion) Giordani Soika, 1941 (081): 155 (Somalia) [Chlorion migiurtinicus]
mochiana Cerceris Giordani Soika, 1942 (081): 205 (Etiopia). Syn di Cerceris rufiscutis Cameron, 1908
mochii Sphex Giordani Soika, 1942 (081): 196 (Etiopia)
morula Cerceris Giordani Soika, 1942 (081): 202 (Etiopia). Syn. di Cerceris egena mombasae Arnold, 1942
rufiscutis **conradsi** Cerceris Giordani Soika, 1942 (081): 206 (Tanganica)
siculus Philanthus Giordani Soika, 1944 (091): 10 (Sicilia) [Philanthus coarctatus siculus]
spectrum **multipictoides** Cerceris Giordani Soika, 1942 (081): 208 (E Africa)
splendidissima Cerceris Giordani Soika, 1942 (081): 198 (Tanganica)
subfuscatus **albovillosulus** Sphex Giordani Soika, 1942 (081): 198 (Somalia) [Prionyx subfuscatus albovillosulus]
zethiformis Cerceris Giordani Soika, 1942 (081): 201 (Sudan). Syn di Cerceris alboatra Walker, 1871

Fam. **Andrenidae**

siculum Camptopoeum Giordani Soika, 1944 (091): 16 (Sicilia)

Fam. **Anthophoridae**

siculus Epeolus Giordani Soika, 1944 (091): 20 (Sicilia)

RINGRAZIAMENTI

Siamo grati a Guido Pagliano per il controllo delle specie di Hymenoptera Sphecidae ed a Karl-Heinz Schmidt per la segnalazione di una possibile omonimia.

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Mem. Soc. entomol. ital., 77: 123-159 *31 marzo 1999*

Marcello La Greca

Biogeography of the palaearctic Pamphagidae (Orthoptera)

Abstract - The Pamphagidae are spread over the whole of Africa, the Mediterranean area and the Palaearctic Asia. They most likely differentiated from a Gondwanian stock of Pamphagoidea and originated in southern Africa in Mid-Cretaceous when the African plate was already separated from the S.American, Indian, Malaysian and Antarctic-Australian plates. The significant presence of Pamphagidae in the Palaearctic Region (more than 340 species versus less than 100 Afrotropical ones) can be ascribed to two biogeographical events which took place in the Palaeogene when some plate fragments, the terranes, broke off the northern edge of the African plate and, crossing the Tethys, rafted onto the southern edge of Eurasia, carrying there some stocks of Akicerinae and Pamphaginae. A western terrane, called Alborana, accreted with the Iberian-Sardinian-Corsican plate, wich afterwards broke up and gave rise by vicariance to the 14 genera of Pamphaginae that populated Spain, Sardinia, Sicily and the Maghreb. One or more eastern terranes accreted with the Afghanian-Iranian edge of the Eurasian plate, allowing the evolutionary explosion in western Asia of further 21 genera of Pamphaginae and 18 genera of Akicerinae. Another evolutionary explosion of the Akicerinae happened quite likely at the end of Miocene and in the Plio-Pleistocene, when they pushed forward, both eastwards to Mongolia and China and westwards along the northern and southern Mediterranean coasts.

Riassunto - *Biogeografia dei Pamphagidae paleartici (Orthoptera)*
I Pamphagidae sono diffusi in tutta l'Africa, l'area mediterranea e l'Asia Paleartica. Molto probabilmente essi si differenziarono da uno stock gondwaniano di Pamphagoidea e si originarono nell'Africa meridionale nel Cretaceo medio quando la placca africana era già separata dalle placche sudamericana, indiana, malesiana ed antartico-australiana. La notevole presenza di Pamphagidae nella Regione Paleartica (oltre 340 specie contro meno delle 100 afrotropicali) può essere ascritta a due eventi biogeografici che ebbero luogo nel Paleogene quando alcuni frammenti delle placche, i terrani, si staccarono dal margine anteriore della placca africana e, attraversando la Tetide, si diressero verso il margine meridionale dell'Eurasia portandovi alcuni ceppi di Akicerinae e di Pamphaginae. Un terrano occidentale, detto Alborana, si è saldato alla placca ibero-sardo-corsa che si è poi frammentata dando origine per vicarianza ai 14 generi di Pamphaginae che popolarono Spagna, Sardegna, Sicilia ed il Maghreb. Uno o più terrani orientali si saldarono al margine afgano-iraniano della placca eurasiatica consentendo l'esplosione evolutiva in Asia centro-occidentale di altri 21 generi di Pamphaginae e di 18 generi di Akicerinae. Un'altra esplosione evolutiva delle Akicerinae è verosimilmente avvenuta alla fine del Miocene e nel Plio-Pleistocene quando questi pamfagidi si sono spinti verso est in Mongolia e Cina, e verso ovest lungo le coste settentrionali e meridionali del Mediterraneo.

Key words: Pamphagoidea, Palaearctic Pamphagidae, Tethys, Pamphagidae Biogeography

Introduction

I intend to expound a hypothesis on the origin and spreading of the Pamphagidae in the Palaearctic Region on the basis of palaeogeographical and palaeoecological considerations. The geographic distribution of the taxa of this family which systematic is well documented, the present ecological conditions justifying such distribution, their systematics and their high

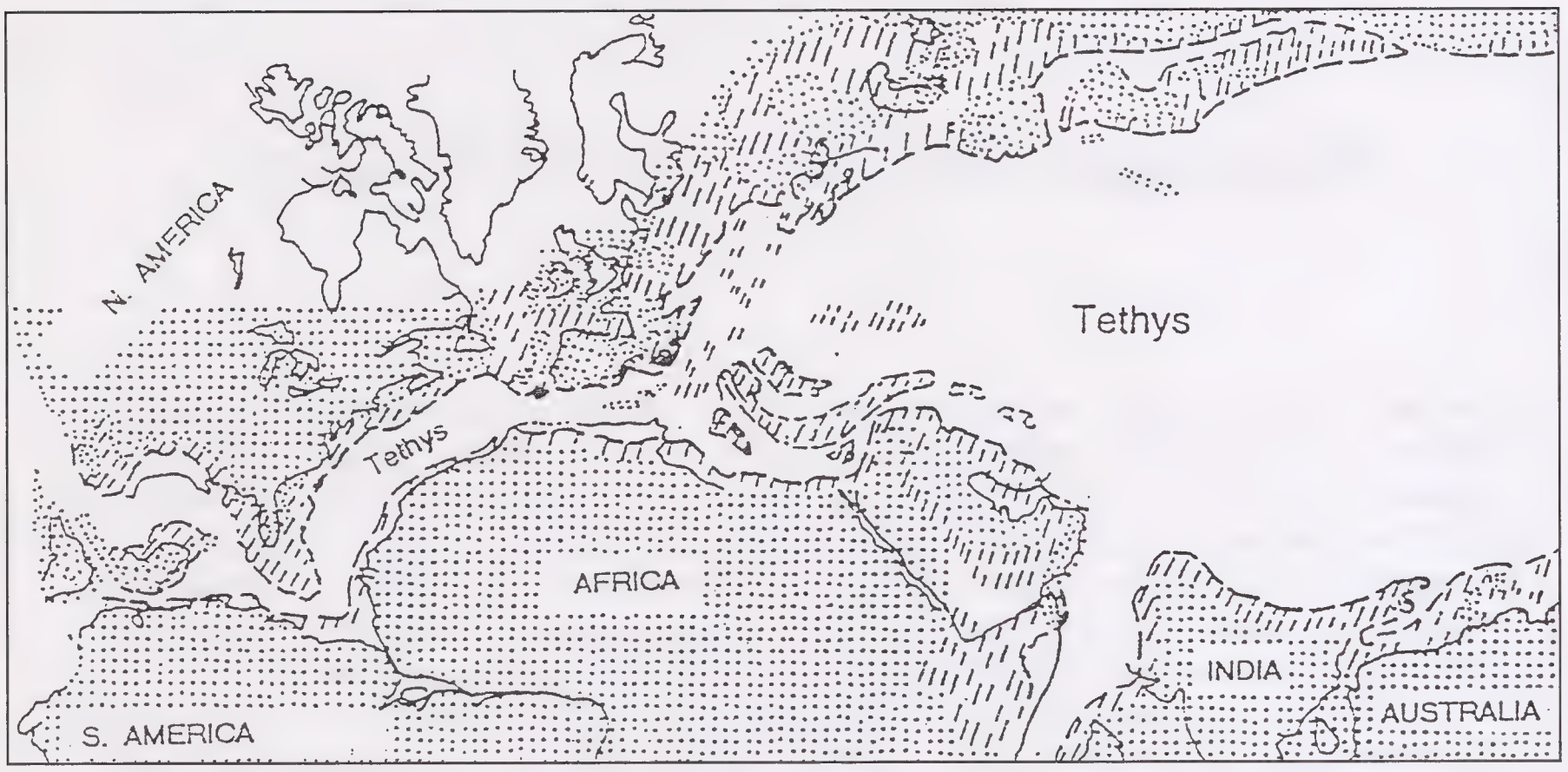

Fig. 1. The Tethys at the Upper Jurassic (145 Myr) has completed the disjunction of Gondwana from Laurasia (from Rage, 1995).

degree of endemicity are the final results of the expression of the historic events that preceded them; they represent, in absence of fossils, the only clues available for analysing the history of the peopling of the Palaearctic Region by the Pamphagidae.

Four phyletic lines are recognized in this family: the Echinotropinae, with four genera and nine species endemic of Namibia and South Africa; the Porthetinae with fourteen genera, also prevalently present in Namibia and South Africa where they probably originated before spreading westward to Angola and eastward to Mozambique, Zambia, Tanzania, and with five genera reaching as far as East Africa, and also Yemen in the case of one species; the Akicerinae with a markedly disjointed distribution, on one side in the Afrotropical Region where they are present only in South Africa and Namibia with five endemic genera, in the other in the Palaearctic Region (where the largest concentration of the species of this subfamily is found), mainly in central Asia with nineteen genera, almost all endemic, and also in the Mediterranean lands with five genera; and finally the Pamphaginae which are wholly Palaearctic, with nineteen western Mediterranean and Moroccan genera and twentyfour of western and central Asia, about half of which reach the eastern Mediterranean coasts. The Pamphagidae are the only family of the Pamphagoidea which is well represented in the Palaearctic Region, with 63 genera and 340 species (according to Presa & Garcia, 1983, herein updated to 1995) opposit to less than 100 Afrotropical species. A large number of the Palaearctic taxa are strictly endemic or endemic of limited regions, mainly centred in two far flung areas, one in the west including the Maghreb, Morocco and the Iberian peninsula, the other in the east, extending from Anatolia to Kazakistan, as well as in Mongolia and China, especially in the Gobi desert. A limited number of other taxa, especially those related to taxa from the eastern area, is present in the rest of the Mediterranean subregion, eastern Pakistan and Arabia.

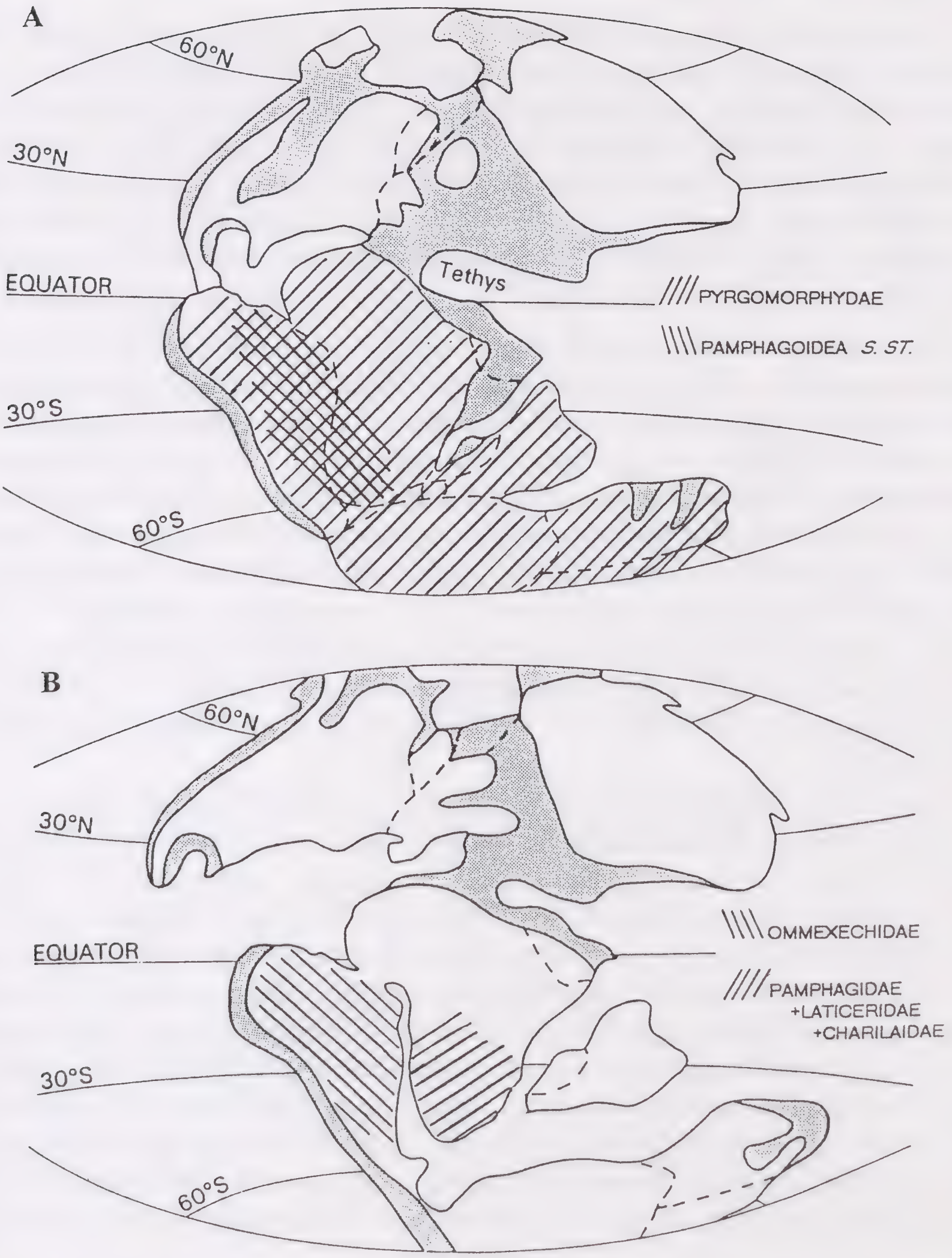

Fig. 2. A, The gondwanian distribution of Pyrgomorphidae and of the other Pamphagoidea in the Late Jurassic. Shaded areas indicate epicontinental seas. B, The Mid Cretaceous (105 Myr) distribution of Ommexechidae in S. America and of Pamphagidae, Charilaidae and Lathiceridae in southern Africa (from Cox, Healy & Moore 1973, modified).

RESULTS AND DISCUSSION

Some considerations on the Pamphagoidea and the Pamphagidae complex need be put forward to account for these biogeographic aspects. The superfamily Pamphagoidea belonging to the Acridomorpha[1], was identified by Uvarov (1943) as "the Pamphagine-Pyrgomorphine complex" and officially established by Dirsh (1975) to include the Pyrgomorphidae, Pamphagidae, Ommexechidae, Charilaidae and Laticeridae; in my opinion it comprises two distinct phyletic lines, one with solely the Pyrgomorphidae, and the other with the remaining four families. In fact, up to 1965 and even later, owing to the great affinities displayed by the latter, they were considered subfamilies of the single family Pamphagidae (or tribe, when the family was considered a subfamily) (Uvarov, 1943, Sharov, 1968)[2]: Uvarov (1943) postulated that the position of the Pyrgomorphidae is uncertain because they present transition characters between the Chasmosacci and Cryptosacci, the latter comprising only the typical Acridoidea. Therefore, on the basis of morphological characters, I believe that the Pyrgomorphidae should form a twin, albeit distinct, superfamily of the Pamphagoidea s. str., the Pyrgomorphoidea. Also the biogeographic history of the two superfamilies seems different: the Pyrgomorphidae show a significant presence not only in the Afrotropical and in the Neotropical Regions, but also in the Oriental and Austroceanic, comprising 91.27% of the species, whereas the remaining 8.73% (38 species belonging to 6 genera) is the result of a secondary spreading in the Palaearctic Region. The Pyrgomorphidae most probably originated in Gondwana (Kevan, 1965, 1977) and differentiated early before the breakup of this megacontinent.

Diversely, as already stated, the Pamphagidae and related families, are present exclusively in the Afrotropical and Palaearctic Regions; in the latter, which they colonized secondarily as a result of a vicariance process, the Pamphagidae comprise 77.2% of the species. Superficial analysis of chorological data together with the principle based on the fact that the region of origin of a family is where the largest concentration of species is found, would suggest that the territories of the Palaearctic Region were the centre of origin of the Pamphagidae, and that only later did they spread to the Afrotropical Region. Not only is this principle not always valid, but this hypothesis contrasts with the fact that the Pamphagidae are allied to the South American Ommexechidae and the South African Charilaidae and Laticeridae, all of which clearly derive from Gondwanian stocks; moreover they, among the others, comprise two subfamilies, Echinotropinae and Porthetinae, which probably also originated in southern Africa and therefore are of remote Gondwanian origin. An alternative would be that the

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[1] I consider that the acceptance of the taxa Acridomorpha proposed by Dirsh (1966) as suborder of the Orthoptera order is an excellent systematic-phylogenetic solution. Therefore, I do not accept the taxonomic level of order later given by Dirsh (1973, 1975) to the taxa of its superorder Orthopteroidea, which corresponds with the suborder Acridomorpha. The term Orthopteroidea should be conserved to indicate a superorder, twin of the Blattopteroidea comprising the Blattaria, Mantodea, Isoptera and Zoraptera.

[2] I disagree with Yin (1982) who abolishes the superfamily Pamphagoidea to place the Pamphagidae and the Pyrgomorphidae among the Acridoidea: in fact, according to Roberts (1941) Pamphagidae s.l. and Pyrgomorphidae are Chasmosacci while the other Acridoidei are Cryptosacci; see also the cited opinion of Uvarov (1943).

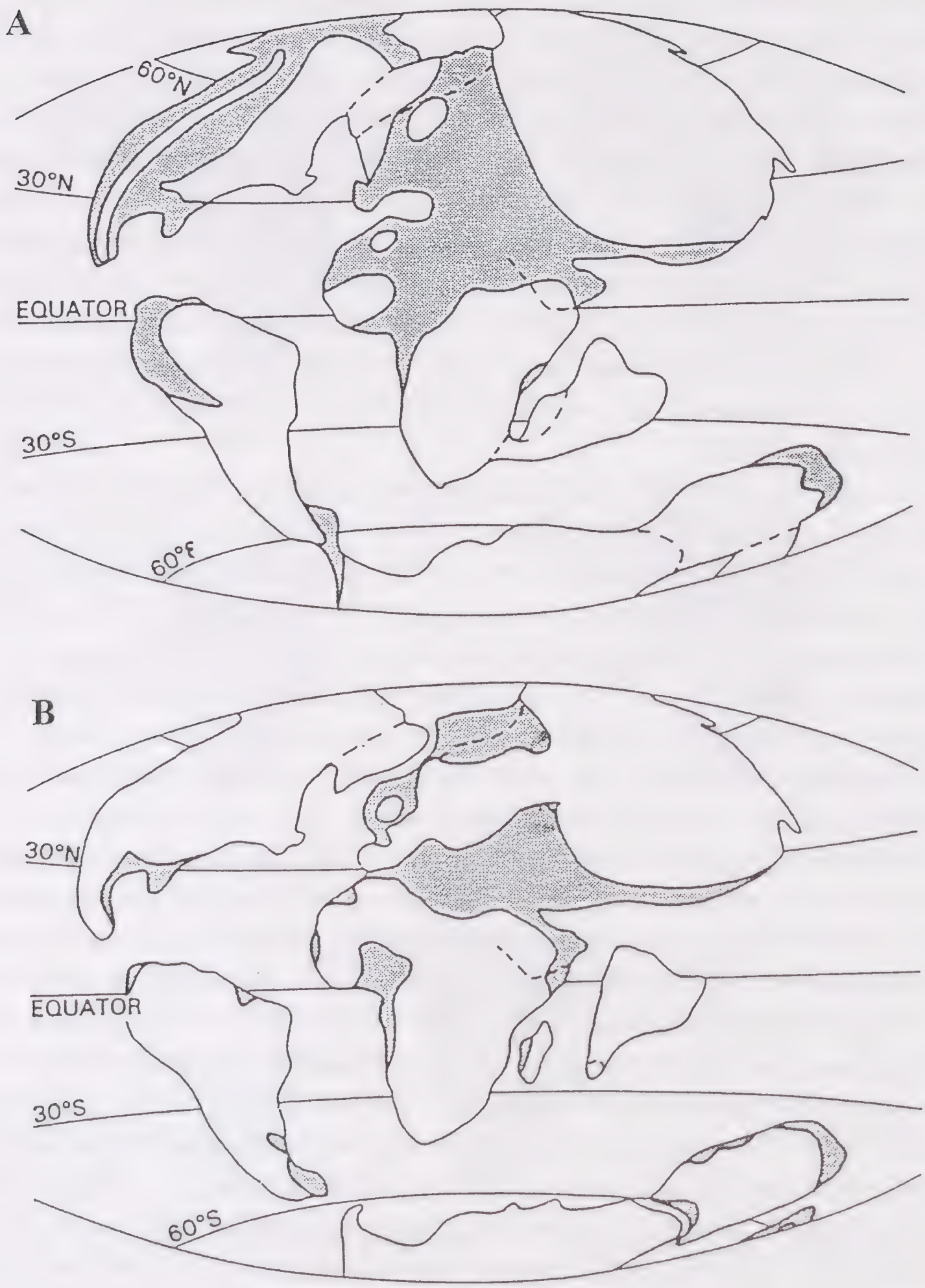

Fig. 3. Palaeogeography of Africa: A, In the late Cretaceous (75 Myr); B, In the Upper Eocene (50 Myr). Shaded areas indicate epicontinental seas (from Cox, Healy & Moore 1973).

Pamphagoidea s.l. originated in the remote Pangaea and populated both Laurasia and Gondwana in that distant age. This hypothesis is supported by Jago (1979), who states that the Pamphagidae (probably in an attempt to justify their presence in Eurasia) should have appeared 185 Myr, in the Middle Jurassic, and therefore before the breakup of Pangaea, first with the Akicerinae and Pamphaginae, exactly the extant subfamilies present in the Palaearctic Region; the Echinotropinae, Porthetinae and also the Charilaidae, all of southern Africa, would have ori-

ginated later in the Cretaceous (120 Myr): in this case the family would be polyphyletic. However, this is in conflict with the fact that the Pamphagidae are absent in most of the continental plates of Pangaea, that all their subfamilies must derive from a common stock as they are surely a monophyletic family, that their presence in the Palaearctic Region is limited to two subfamilies of Pamphagidae and that the Akicerinae in Africa are also present in southern Africa with endemic genera (*Adephagus*, *Akicera*, *Batrachornis*, *Batrachotetrix*, *Eremotettix*). Besides, the Tethys had completed its aperture and completely separated Laurasia from Gondwana during the Upper Jurassic (ca 145 Myr) (fig. 1), and it is not conceivable that prior to that period the Pamphagidae had already originated all the present subfamilies, an essential condition to explain their remote presence in both continental blocks. Some biogeographic considerations which I shall illustrate later on, lead me to postulate that the Pamphaginae are a subfamily that differentiated last and not first, perhaps at the end of the Cretaceous along the northern coasts of Africa.

According to Sharov (1968), the Acridomorpha would have originated from a stem that split off from the Locustopsidae in the Jurassic; the biogeographic situation so far exposed suggests that all the Pamphagoidea s. l. are to be considered as originating from a single Gondwanian strain, not dating earlier than the Jurassic, but already differentiated into two branches. One branch was widespread in Gondwana and represented the ancestors of the Pyrgomorphidae, and a second which represented the ancestors of the Pamphagoidea s. st. present only in a reduced area of Gondwana corresponding with the present day southern America and southern Africa (fig. 2A). After the breakup of the Pangaea which ended within the Cretaceous (fig. 2B), a branch of this stock, which had become isolated in S. America, would have originated the Ommexechidae[3]. Two other stocks isolated in southern Africa would have given rise to the Charilaidae and the Lathiceridae, while a third branch would have originated also in southern Africa the earlier Pamphagidae. All these African Pamphagoidea s. str. never arrived more northerly owing to the isolation of southern Africa from the rest of the continent during Late Cretaceous and Palaeocene (80-60 Myr); in the Eocene owing to the fusion of these two parts of Africa these Pamphagoidea s. str. could spread in N. W. Africa (fig. 3). Moreover, this hypothesis is supported by the presence in Morocco of *Pamphagodes riffensis* I. Bolivar, 1878, a genus and an endemic species of Charilaidae (the other species of which are all of southern Africa), and by the fact that the Hetrodidae, endemic of Africa and which are also absent in Madagascar, present a biogeographic history that seems to be very similar to that of the Pamphagidae. Though Pamphagidae and allied families represent the stock of living Acridomorpha that have maintained the more primitive characters (Sharov, 1968), I think they flourished only later than Pyrgomorphidae, in concomitance with the reduction of the pluvial forests and the advance of the semiarid and arid environments, also considering their absence in most of the Gondwanian tectonic plates surrounding the African plate. Thus, the Pamphagidae are southern African in origin, but with roots in Gondwana, and should have differentiated not prior to the Upper Jurassic or Lower Cretaceous (140-120 Myr), after Africa split off from the other Gondwanian continents, and when Madagascar (where Pamphagidae are totally absent) had split off from Africa after the opening of the Mozambique Channel about 115 Myr.

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[3] According to Sharov (1968) the Ommexechiidae seem to be a subfamily of the Pyrgomorphidae.

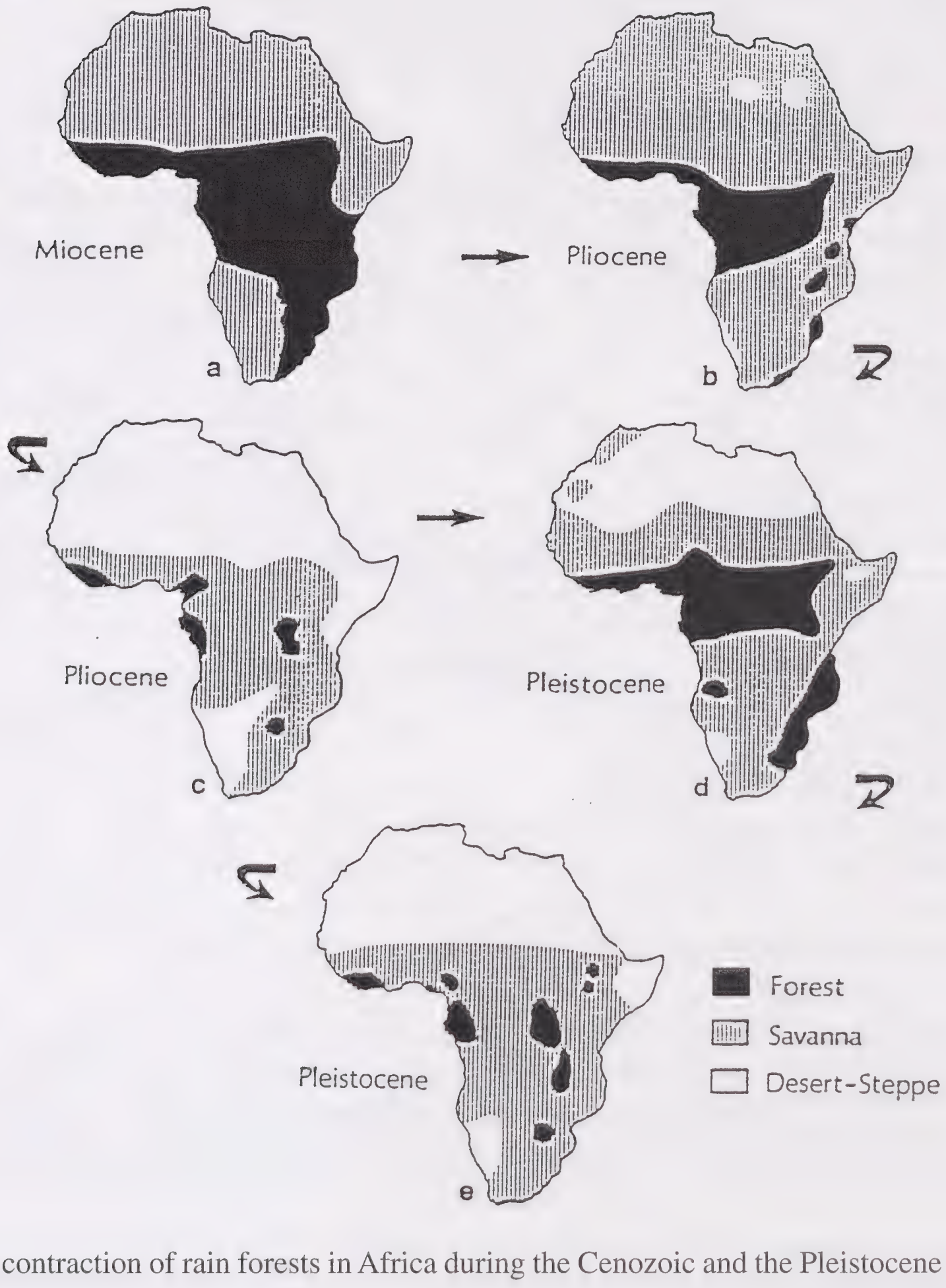

Fig. 4. The contraction of rain forests in Africa during the Cenozoic and the Pleistocene (from Louw 1986).

If the remote Gondwanian origin of the Pamphagidae is admitted, the spread of these Orthoptera to the Palaearctis could have advanced only from northern Africa. It can be held that among the subfamilies of Pamphagidae at least Akicerinae (as also the family Charilaidae) spread throughout Africa reaching the Tethys coasts, perhaps as from the Eocene (50 Myr); their current distribution in this continent should be considered only as a relict of a more ancient Cenozoic distribution. It is likely that already at the end of the Triassic (as shown from terrestrial Vertebrate fossils) the northern part of Gondwana was populated by a fauna that was different from that of the southern Gondwanian areas, a fauna that displays a marked northern pattern (Rage, 1988). At the end of the Cretaceous the variations in the arid zone/pluvial forest zone ratio (Louw, 1986) had caused southern African Gondwanian elements to

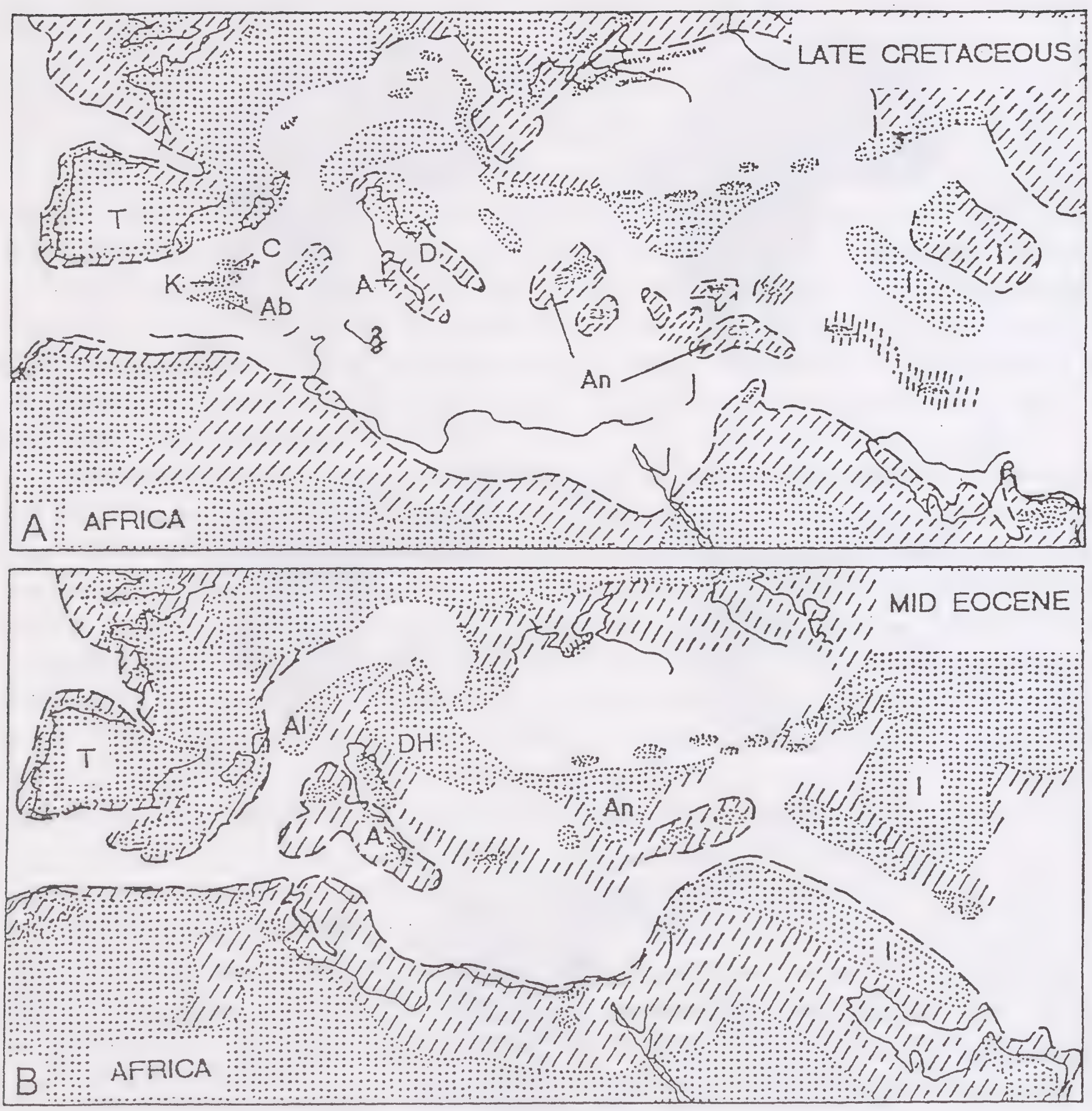

Fig. 5. The Palaeomediterranean in: A, At the end of the Cretaceous; B, At the Mid Eocene. A, Apulia; Ab, Alboran; Al, the Alps; An, Anatolia; CS, Calabria + Sicily; D, Dalmatian; DH, Dinaro-Hellenic microplate; I, Iran; K, Kabylia. (from Rage 1995).

spread northward. This migration was made possible by the fact that the African plate was still situated south of its present position until 70 Myr and thus the Equator was well north, and that during this period, the semiarid climatic belt adjacent to the equatorial forest developed. The subsequent gradual northerly shift of the continent (completed 23 Myr ago at the end of the Oligocene) determined the reduction of these dry areas and the advance of the rain forest throughout most of Africa during the Palaeocene, and the consequent disappearance of the Charilaidae and Pamphagidae, which are not forest dweller, in the whole of Central Africa. The temperature declined progressively from the Palaeocene to the end of the Miocene with a plunge between 6.5-5 Myr in the Pontian, and seems to have risen again during the

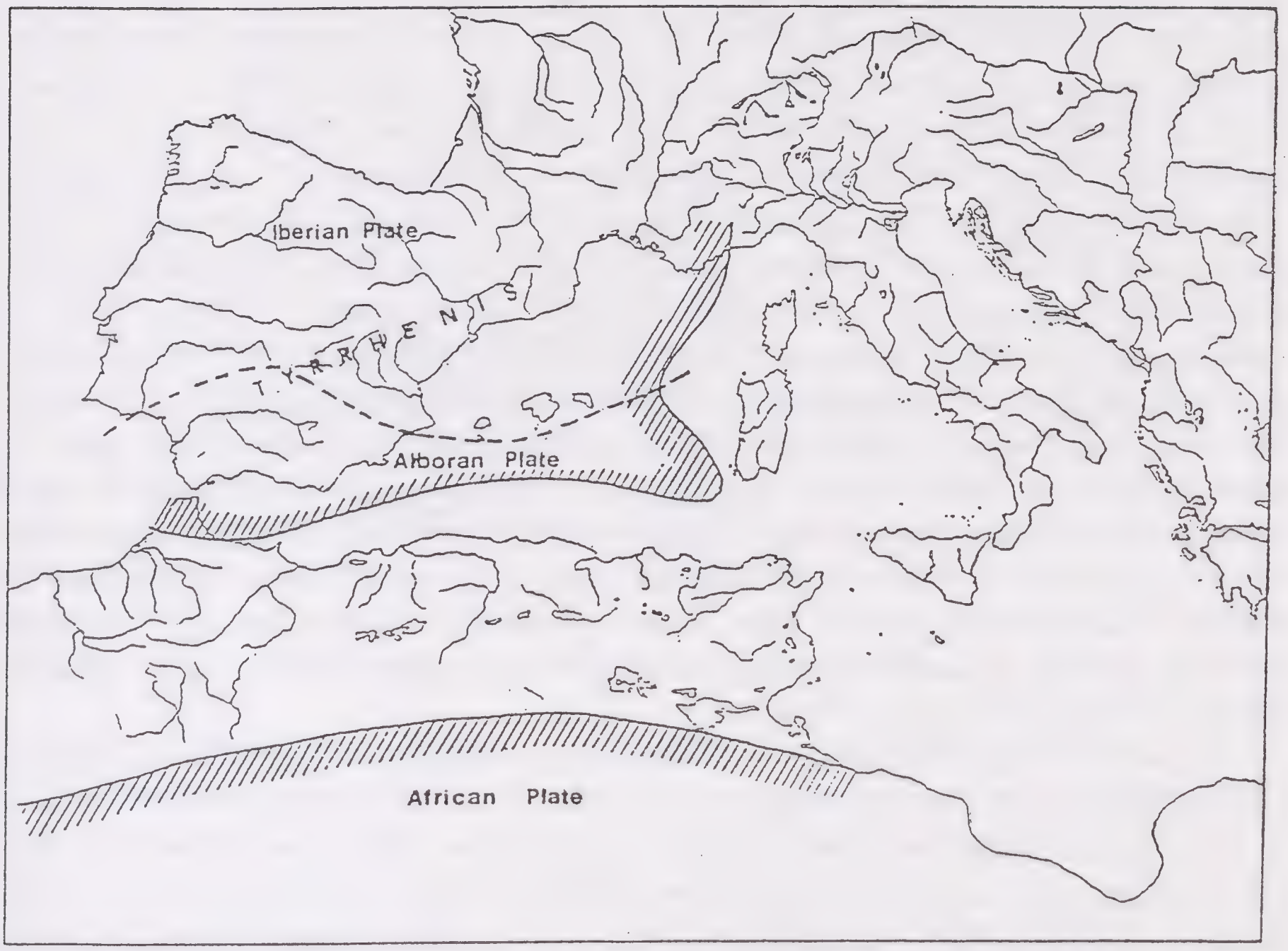

Fig. 6. The Tyrrhenis (Iberian + Alboran plates) in the Eocene (from La Greca 1990b).

(Brain, 1985). These past climatic changes, like those which occurred at the end of the Pliocene and Pleistocene, may have broken up a once continuous distribution into discontinuous patches and thus served as a biological isolating mechanism and an evolutionary stimulus (Brain, 1985). Towards the end of the Eocene, in Africa, rain forests started grading into open woodlands, shrub savannahs and semideserts (fig. 4) that are the environments preferred by the Pamphagidae. This situation progressed, causing the formation of a large savannah zone in northern and southern Africa during the Oligocene-Miocene and the maximum contraction of forests at the end of the Cenozoic. In this manner an interconnecting north-south corridor was formed (fig. 4b) along the eastern part of the continent (Louw, 1986) linking Transvaal to East Africa through Zimbabwe and Malawi. The Porthetinae, which are absent in the Palaearctic Region, crossed this corridor and spread from southern to East Africa (La Greca, 1990a), while they do not seem to have ever reached northern Africa. Therefore, these palaeological conditions favoured spreading of the xeric and semixeric Pamphagidae throughout the entire African continent during some periods of the Cenozoic.

Not considering many of the imaginary land bridges invoked up to about 30 years ago to explain the spreading of fauna from Africa to Eurasia via land in the Cenozoic and in the Pleistocene, it would seem obvious that their spread must be a result of dispersal in the periods when Africa broke off its isolation and came into contact with Eurasia. Some connections between Africa and Asia firstly occurred as late the Middle Miocene (about

15 Myr) when Arabia had almost completely broken off from Africa as a result of the opening of the Gulf of Aden (Bernor, 1983) and fused with Anatolia, and later with Europe at the end of the Miocene (about 7 Myr) during the Mediterranean salinity crisis. However, neither of these palaeogeographic events seems to offer a plausible explanation to the passage of Pamphagidae from Africa to the Palaearctis: the spread of slow, non flying insects (unlike what can happen for Mammals) cannot have come about in the period of 1 million years and in the critical environmental conditions, which occurred during the salinity crisis. If this had occurred, the present day invertebrate fauna pattern in Europe would have been very different, and a great many more stocks of African origin would have been present there. As regards the above-mentioned Arabia-Anatolia fusion during the Middle Miocene, it must be kept in mind that one of the three Pamphagidae existing in Arabia is a Porthetinae (*Xiphoceriana arabica* Uvarov, 1922), subfamily absent in Palaearctis, and the others are two species of Akicerinae, *Utubius syriacus* (I. Bolivar, 1893) and *Eremotmethis carinatus* (Fabricius, 1775); the latter belonging to a monospecific genus that probably differentiated in the Plio-Pleistocene from *Eremopeza* autochthonous to Iran and Afghanistan. Therefore, there are no significant traces justifying any role played by Arabia in the Orthoptera peopling of western Asia by African stocks.

However, the fact that animal organisms in geological times were able to spread not only by dispersal, but very often also by vicariance, should be considered. Indeed, the latter seems to furnish the best solution to the problem under study. Continental plate rifting and spreading were of primary importance in determining by vicariance the distant past history of the peopling of vast areas, whereas climatic changes mainly modified animal distribution by dispersal when territorial connections were already existing, and especially over shorter time spans. Throughout the long geological period stretching from the end of the Cretaceous to the Miocene (70-15 Myr) a gradual northerly shift of the African plate took place; this determined the narrowing of the Tethys which up till then had been a real barrier to fauna exchange (Rage, 1995), and the Palaeomediterranean began to form. This event was preceded by the drift of the great continental fragments, the terranes, that broke off the northern edge of the African plate and promptly accreted with the Eurasian southern margin (fig. 5). They allowed repeated Trans-Tethyan migrations and in this manner the barrier formed by the Tethys was overcome by vicariance. Hence, there is no need to apply the existence of connections linking Africa to Eurasia, that, when they did occur, as I have stated, did not enable the south-north dispersal of African terrestrial organisms. I have repeatedly sustained the reality of this Trans-Tethyan migration process model (La Greca, 1970, 1990b, 1996), and it was recently and autonomously put forward by vertebrate palaeontologists (see Rage, 1995).

It is reasonable to hold that at least two great terranes were involved in the process, one concerning the present western Mediterranean area and one (or more) the eastern one. The former, called Alborana, probably split off from the northwestern edge of the African plate towards the end of the Cretaceous or in the Palaeocene carrying the stock of the ancestors of the Pamphaginae (probably originated from a group of Akicerinae), and then accreted with the Iberian-Sardinian-Corsican Plate to form the microcontinent Tyrrhenis (fig. 6). The existence of this microcontinent had already been postulated between 1881 and 1960 by all the biogeographers of the Mediterranean, even if the hypothesis had been conceived

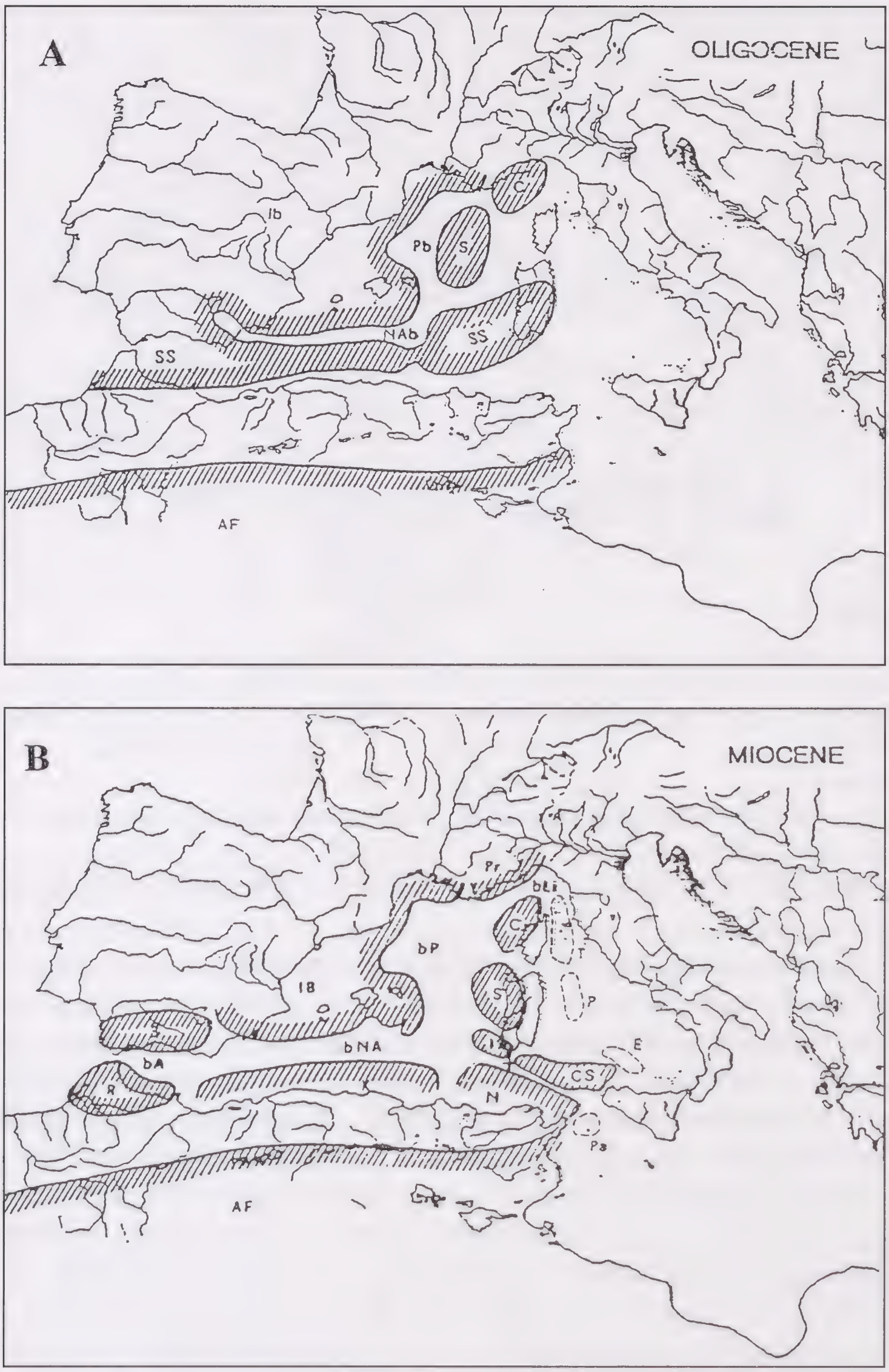

Fig. 7. The breakup of the Tyrrhenis: A, In a northern and a southern section in the Oligocene; B, Further breakup in the Miocene. AF, African plate; B, Baetican microplate; bA, bLi, bNA, bP, Alboran, Ligurian, North African and Provençal basins; C, Corsican microplate; CS, Calabro-Sicilian microplate; E, Aeolian microplate; I, Iglesias microplate; K, Kabilian microplate; N, Numidian microplate; P, Pontian microplate; Pa, Pelagian microplate; R, Rif microplate; S. Sardinian microplate; SS, southern section (Alboran microplate); T, Tuscan microplate (from La Greca 1990b).

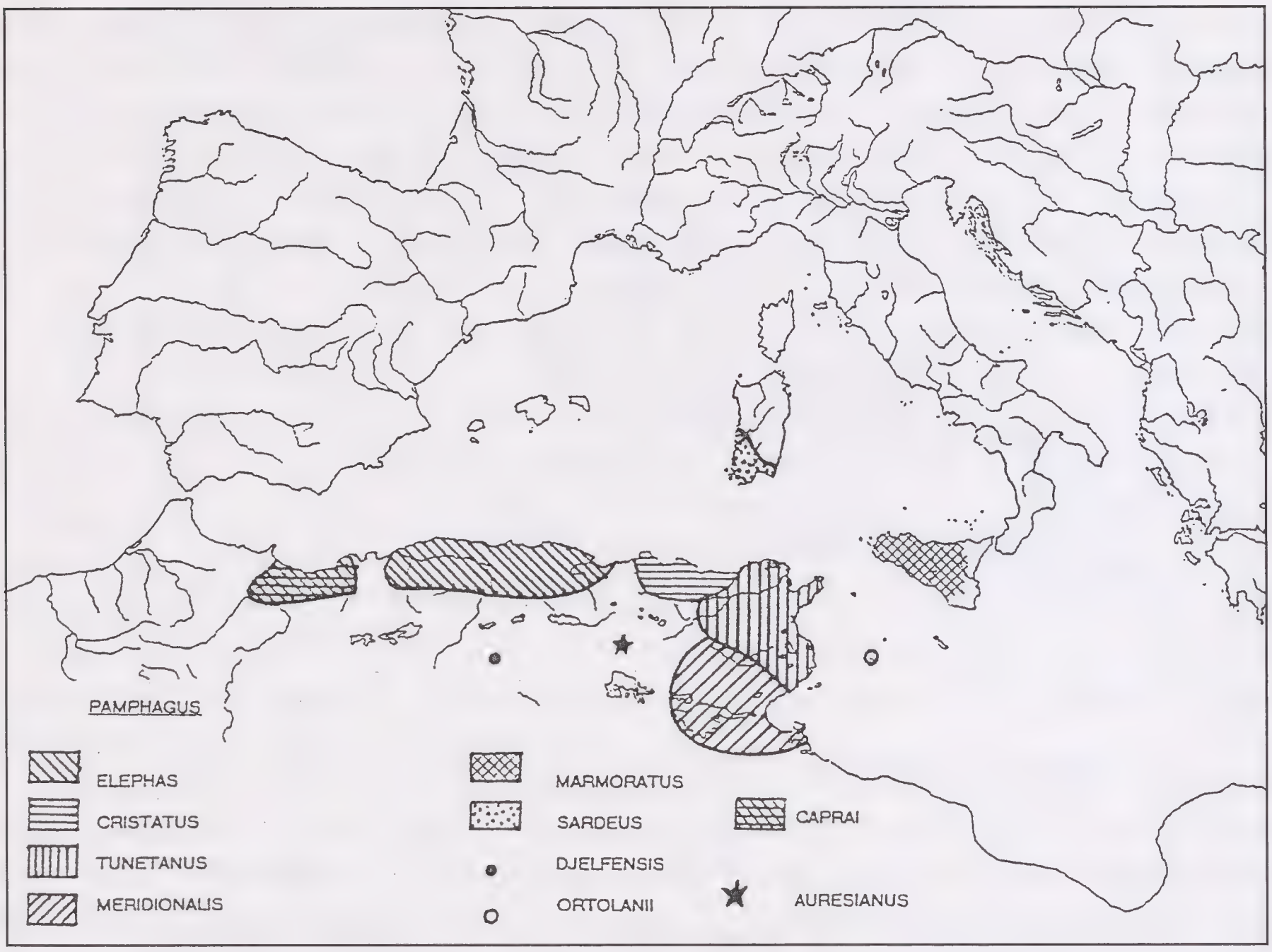

Fig. 8. Distribution of the *Pamphagus* species in relation to the breakup of the southern section of the Tyrrhenis.

without taking continental drift into consideration (Kobelt, 1898, Jeannel, 1942). Brown & Gibson (1983) underlined this palaeogeographical event stating that "at least one parcel of southern Spain is believed to have been a chunk of northern Africa at one time". The second terrane, the Iranian-Anatolian Plate, broke off from the central part of the African plate, probably prior to Alborana, and, taking some stocks of Akicerinae with it, drifted east to form the territories of the area today occupied by the Balkan region, and by Anatolia to Iran. This terrane (or possibly groups of terranes) has been given different names by biogeographers and geologists, e.g. Apulia, Apulian Plate, Aegeid, or others, depending if they were referring to the western or eastern parts (Gridelli, 1950, La Greca, 1990b, 1996, Rage, 1995). According to Robertson et alii (1991) in Late Cretaceous-Cenozoic time the whole eastern Mediterranean Neotethyan region is to be considered as a flexible collage of interconnected small ocean basins and microcontinents (fig. 5B).

The Tyrrhenis was a subcontinent which had remained intact until the Oligocene (fig. 6) and then broken up into microplates that migrated east and south giving rise to all the W. Mediterranean lands, including the large and small islands and the Maghreb (Auzende, Bonnin & Olivet, 1973; La Greca, 1990b, 1996; Rage, 1995). Its breaking up (fig. 7) likely initiated with the division into northern and southern sections and much of the latter corresponded with Alborana; its southern sector underwent further fragmentation during the Miocene, but its base made up of the Baetico-Riffan plate remained joined to the Iberian

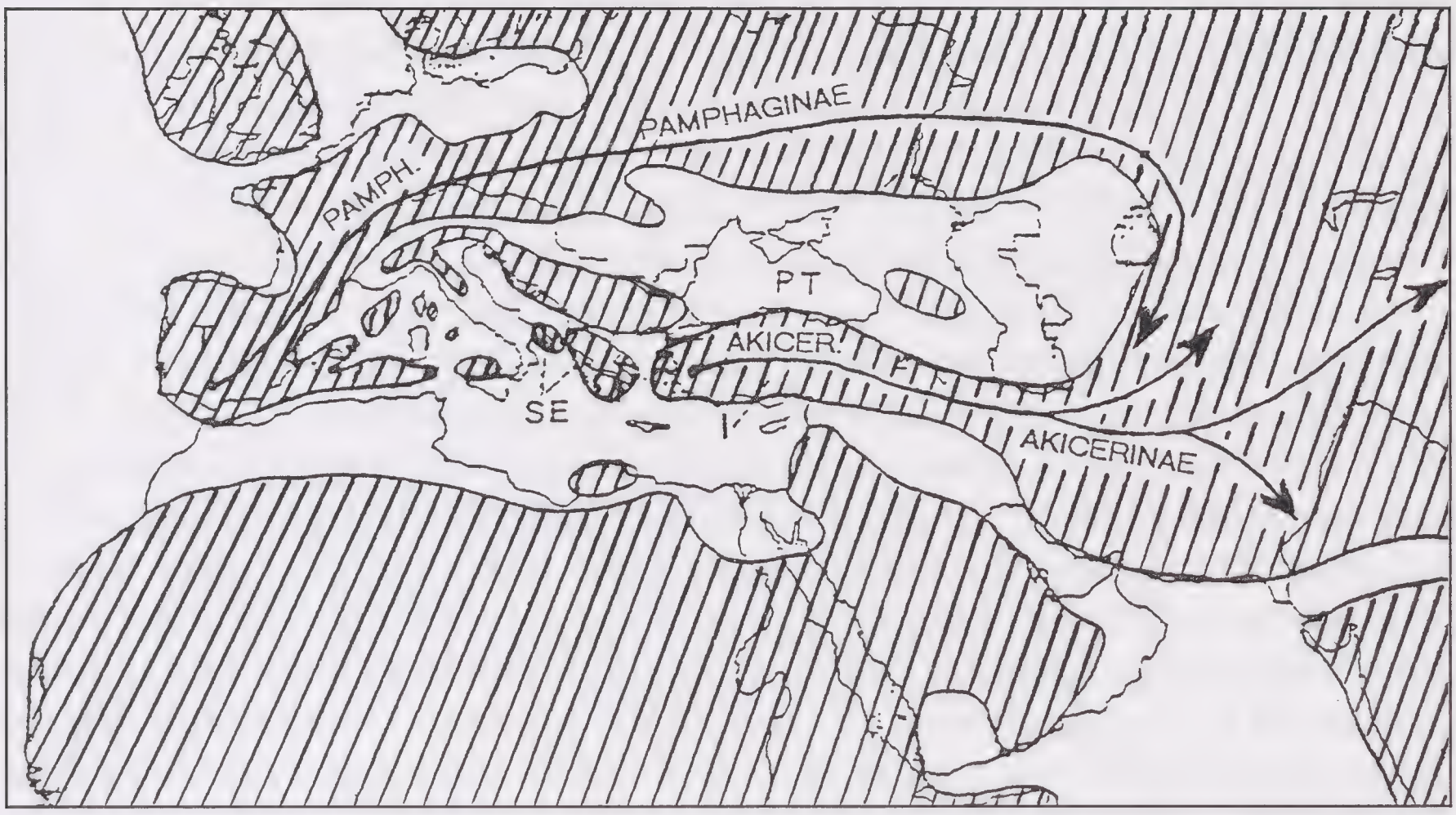

Fig. 9. Migration of the Pamphaginae from the Tyrrhenis to Asia, and of the Akicerinae from the Iranian-Anatolian plate (Aegeids) to the rests of Asia, in the middle Miocene. I, Western section of the Iranian-Anatolian microplate accreted with Angara; SE, Southwestern section of Iranian-Anatolian microplate (S. Aegeids); T, Tyrrhenis.

block. This sector originated the eastern and southern microplates that gave rise to southern Sardinia, western Sicily, the tip of Calabria, Tunisia and Algeria which carried their autochthonous fauna with them. Various genera of Mantodea, Orthoptera and Coleoptera bear witness of the participation of Alborana in this palaeogeographic revolution and the breakup of the southeastern part of Tyrrhenis (La Greca, 1990b); however I shall here consider only the case of the Pamphagidae.

The presence in the Iberian peninsula of the genera *Euryparyphes* with three endemic species, *Eumigus* with five endemic species, *Navasius* with two endemic species, *Ocnerodes* with two endemic species, *Acinipe* with six species three of which are endemic, and the presence of the same genera also in Morocco and western Algeria in addition to other genera (*Paraeumigus*, *Paraeuryparyphes*, *Pseudamigus*, *Amigus*, *Nadigeumigus* and *Paracinipe*), some endemic and all with numerous endemic species, suggests that the Baetico-Riffan plate functioned as the western centre of evolution of the Palaearctic Pamphagidae. It must be pointed out that all these genera, with the exception of *Acinipe* and *Paracinipe*, belong to the Euryparyphini, a western Mediterranean endemic tribe. The split of the southern section of Tyrrhenis is well documented by the species, all endemic, of the genus *Pamphagus* (fig. 8) which originated in that part of the Tyrrhenis: *P. sardeus* Herrich-Schaeffer, 1840 from southern Sardinia (Iglesias microplate), *P. marmoratus* Burmeister, 1838 from western and central Sicily (Calabro-Sicilian microplate), *P. ortolanii* Cusimano & Massa, 1978 from the island of Pantelleria (Pelagian microplate), *P. tunetanus* Vosseler, 1902 and *P. meridionalis* Descamps & Mounassif, 1972 from Tunisia (Numidian microplate), other 5 species from Algeria (Kabilian microplate).

The Pamphaginae probably spread to the remaining Europe in the Middle Miocene

when the Armorica plate fused with Baltica and Angara Plates, by going round the Perialpine Channel and Paratethys (Bernor, 1983), and spreading eastward to colonise the land originating from the Iranian-Anatolian Plate (fig. 9). This hypothesis is supported by the presence of Pamphaginae in Bulgaria, in the Aegean Islands and of a consistent lot of seven genera in the Caucasian region, plus twelve genera in Anatolia and the Middle East, nine in Iran and three in Afghanistan. In this context, the presence of one species of *Paracinipe* (*P. zebrata* Brunner, 1882) in Syria is noteworthy, since the centre of origin this genus is indubitably palaeotyrrhenean (as many as 12 species are found in the Maghreb, especially in Morocco), and the other related genera (*Acinipe*, *Pamphagus*) are endemic of west Mediterranean area. No Pamphaginae are found eastward beyond this area making it the eastern limit of the subfamily in Asia. The alternative hypothesis that the Pamphaginae may have reached Asia together with the Akicerinae via the Iranian-Anatolian Plate seems difficult to uphold, both with a view to the above-mentioned facts and to the fact that it should be admitted that the Pamphaginae spread only westward, this being exactly the opposite of what occurred for the Akicerinae which spread only eastward. These opposite directions of dispersal would hardly be compatible if these two subfamilies had followed the same penetration route into Eurasia.

The eastern terrane, the Iranian-Anatolian plate crossed the Tethys and drifted to fuse with the southern and eastern margins of Eurasia perhaps as early as the Palaeocene (La Greca, 1990b, 1996; Rage, 1995) (fig. 10), carrying some stocks of Akicerinae. Later on, starting from the Miocene, they spread in Angara, when this plate fused with Palaeoeurope. Dating of the former of these events is confirmed by the absence of Pamphagidae in India. According to Rage (1988) during the Cretaceous/Paleocene boundary a terrestrial communication was established between Laurasia and India, and in this case if Pamphagidae had already been present in the Asian part of Laurasia, they could have colonised also India. The Iranian-Anatolian Plate gave rise to the Peloponnesus, Anatolia, Iran and probably also Afghanistan, and the more ancient Akicerinae spread to this vast area probably since the Neogene, giving rise to five genera in SE Europe, three in Anatolia, as many as eight in Iran and three in Afghanistan. At the end of Miocene the Akicerinae spread rapidly to China and Mongolia with ten genera and in the Turanian region with five genera. Some taxa of the Akicerinae belonging to the genera *Eremocharis* and *Eremopeza* reached Baluchistan at the Indian border. Finally, some species of this subfamily spread in Arabia (*Utubius syriacus* I. Bolivar) or Egypt (*Eremotmethis carinatus* Fabricius), or in southeastern Europe from southern Russia, only as far as Greece (*Paranocaracris bulgaricus* Ebner & Drenowskij, 1930, *Asiotmethis tauricus* Tarbinskii, 1930, *A. limbatus* Charpentier, 1845, *Glyphanus obtusus* Fieber, 1853, *Glyphotmethis heldreichi* Brunner-Wattenwyl, 1882). The fact that in Asia the Pamphagidae did not spread further south and were not able to colonise India after it had collided with Asia may be due to geographic and ecological barriers formed by the Indus river and the Himalayas.

More recently, owing to Plio-Pleistocenic climatic events, two genera of Akicerinae spread westward: one, *Prionotropis*, along the northern border of the Mediterranean, and the other, *Tmethis*, along the southern border. The genus *Prionotropis* comprises two species from the western part of the Iranian-Anatolian Plate, *P. maculinervis* Stål, 1878 from Anatolia and *P. appula* Costa, 1836 from Apulia (in the Pliocene, Apulia broke off from

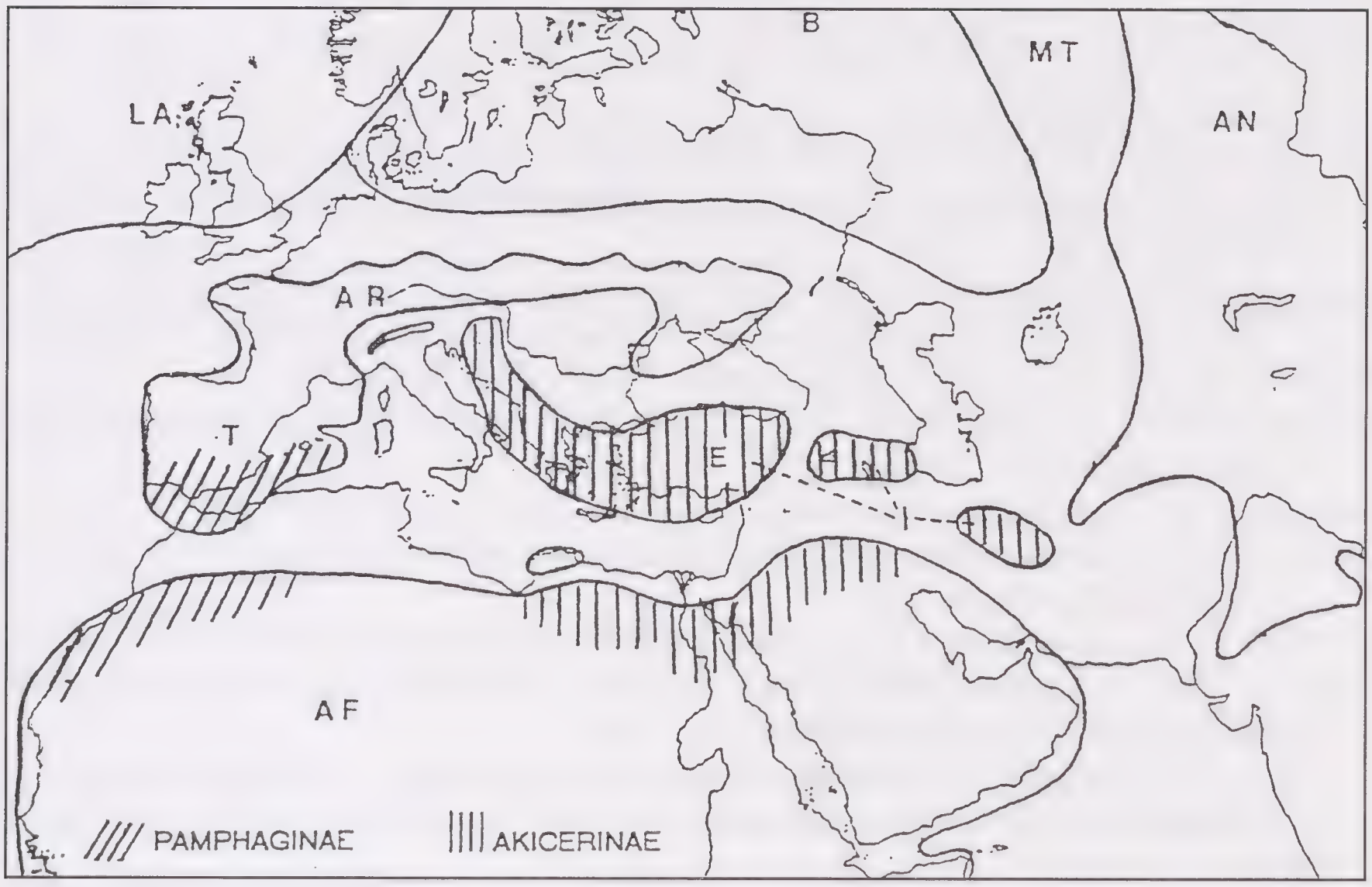

Fig. 10. The eastern Mediterranean terranes (Iranian-Anatolian microplates) in the Oligocene, determinating the transtethyan diffusion of the Akicerinae from Africa to Eurasia. AF, African plate; AN, Angara; AR, Armorica; B, Baltica; E, Iranian-Anatolian plates (Aegeids); LA, Laurentia; MT, Turgai sea; T, Tyrrhenis; oblique lines, Pamphagidae; vertical lines Akicerinae.

the Balkan region (Gridelli, 1950, La Greca, 1996) and fused with the Italian peninsula). When the Paratethys and Perialpine Channel disappeared, the genus passed along the Dalmatian coast as far as Spain; the climatic events in the Pleistocene fragmented its area in that zone and the populations that survived in refuge areas during one of the last Ice Ages differentiated into distinct taxa: *P. hystrix hystrix* Germar, 1817 in Istria, *P. h. azami* Uvarov, 1923 and *P. rhodanica* Uvarov, 1923 in the south of France and *P. flexuosa* Serville, 1839 in Spain. The genus *Tmethis*, more xerothermic, spread from eastern asiatic area where it originated together with other related genera, via the Sinai from Egypt to Morocco, giving rise to a great number of endemic species and subspecies.

The great climatic changes occurring during the Neogene and Pleistocene allowed the W. Mediterranean and all the vast central western Asiatic area to function respectively as western and eastern centre of the evolution of Palaearctic Pamphagidae, much more so than did Africa south of the Sahara. This gave rise to the great variety of genera and species (77.2% of the Pamphagidae) that populate these regions, most of which are endemic. These Orthoptera also found favourable conditions to overcome the Pleistocene glacial periods in southern refuge located in the geographic areas corresponding with the two Tethys terranes.

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Mem. Soc. entomol. ital., 77: 123-159 *31 marzo 1999*

Carlalberto RAVIZZA & Romolo FOCHETTI

I Plecotteri Taeniopterygidae della regione italica (Plecoptera)

Riassunto - Nel presente lavoro vengono analizzati aspetti della sistematica, tassonomia, ecologia ed etologia delle specie italiane della famiglia Taeniopterygidae, della quale vengono riportati anche cenni storici e di paleontologia. Per ogni specie sono fornite una descrizione sintetica, notizie sull'autoecologia e sull'etologia, informazioni sulle affinità sistematiche e osservazioni di carattere generale. Vengono inoltre fornite le chiavi di identificazione delle sottofamiglie, dei generi e delle specie della regione italica, relative sia agli adulti che alle ninfe. Di ogni specie sono infine riportate la distribuzione geografica e l'elenco delle località note per la regione italica.

Abstract - *Taeniopterygidae of the Italian region (Plecoptera).*
The paper deals with systematics, taxonomy, ecology and ethology of the Italian species of the family Taeniopterygidae. Historical and palaeontological remarks on the family are also included. For each species a short description is given, together with notes on the autoecology, ethology and systematics affinities. Identification keys to subfamilies, genera and species of the Italian region, regarding both adults and nymphs, are provided. Also, for each species geographic distribution as well as the list of the collecting sites in the Italian region are reported.

Key words: Plecoptera, Taeniopterygidae, Italian region, taxonomy.

La prima specie di Taeniopterygidae descritta con nomenclatura binomia fu *Phryganea nebulosa* = *Taeniopteryx nebulosa* Linneo (1758). Il nome *Taeniopteryx* fu coniato da Pictet (1841) come sottogenere di *Nemoura*, per le poche specie di Taeniopterygidae note a quel tempo. Successivamente vennero creati i generi *Brachyptera* e *Rhabdiopteryx*, il primo nel 1849 da Newport (Zwick, 1973) il secondo da Klapalek (1902). La famiglia Taeniopterygidae fu istituita da Klapalek (1905), e nel corso del secolo XX furono descritti altri generi includenti specie estranee alla nostra fauna.

I Taeniopterygidae Klapalek (1905) hanno distribuzione olartica. La famiglia conta attualmente 9 generi e 70 specie (Zwick, 1973) ed è divisa in due sottofamiglie: i Brachypterainae (già Brachypterinae), che annoverano 8 generi e 54 specie, e i Taeniopteryginae, con un solo genere e 16 specie. In Europa sono presenti 4 generi e circa 40 specie (Illies, 1978, dati parzialmente modificati): i Brachypterainae comprendono 3 generi, due dei quali, *Brachyptera* e *Rhabdiopteryx*, sono presenti anche nella regione italica, mentre i Taeniopteryginae includono il solo genere *Taeniopteryx*, presente anche in Italia. 13 sono le specie in totale note nel nostro paese. Questa famiglia per lungo tempo è stata considerata molto antica e pare aver mantenuto lo schema di base dell'ordine, ad es. nei genitali interni del maschio. Ad essa sono stati attribuiti una serie di fossili dell'alto Permiano degli Urali (*Palaeonemoura* e *Palaeotaeniopteryx*); sulla loro effettiva appartenenza alla famiglia o addirittura all'ordine c'è però discussione (Zwick, 1980). Molte specie di questo periodo sono state infatti descritte solo sulla base delle ali anteriori o di frammenti di esse. Per il Giurassico della Siberia sono noti invece *Mesotaeniopteryx*, *Mesonemoura*, *Mesoleuctra* e *Platyperla* (Illies, 1965). *Mesoleuctra* e

Perlariopsis risalgono al Cretaceo cinese (Ping, 1928). Tutti i generi citati sono stati inseriti nella famiglia Taeniopterygidae. A proposito della attribuzione di fossili a famiglie moderne di Plecotteri, Zwick (1980) osserva però che la maggior parte di queste è stata fatta in base a supposta primitività di alcune delle attuali famiglie, e fra queste in particolare dei Taeniopterygidae. In tutti i casi comunque ci si è basati su plesiomorfie e non è assolutamente dimostrato che una qualsiasi delle attuali famiglie sia esistita in epoca paleozoica o mesozoica. Per quel che riguarda il Terziario sono note con certezza alcune specie di *Taeniopteryx* dell'alto Oligocene. Da allora, 38-54 milioni di anni orsono, la fauna a Plecotteri somiglia a quella attuale e le famiglie corrispondono con buona approssimazione a quelle oggi esistenti.

La famiglia Taeniopterygidae comprende specie di dimensioni medie, raramente piccole. Le ali anteriori presentano in generale delle fasce trasversali più pigmentate dalle quali deriva il nome della famiglia. Queste fasce sono chiaramente visibili negli esemplari vivi ma sbiadiscono in quelli conservati in alcool. Nei generi *Taeniopteryx* e *Brachyptera* le ali in posizione di riposo, vengono arrotolate intorno al corpo; nel genere *Rhabdiopteryx* sono sovrapposte di piatto sull'addome. La regione anale dell'ala posteriore è grande, con 5 nervature anali. I tarsomeri sono tutti all'incirca della stessa lunghezza. I cerci sono corti ma, in generale, pluriarticolati; nei maschi il primo cercomero è generalmente più voluminoso. Gli urotergi delle femmine sono poco sclerificati mentre gli urosterni tendono a dividersi in piccole placche sclerificate. Nei maschi il IX urosterno è molto grande ed esteso all'indietro a formare un'ampia placca subanale. Nelle femmine l'apertura genitale è posta al centro dell'VIII urosterno; la placca subgenitale è molto ridotta o del tutto assente. Nelle femmine il IX urosterno è normalmente conformato nei Taeniopteryginae, mentre è grande, esteso longitudinalmente e conformato a placca postgenitale nei Brachypterainae.

Le ninfe, che hanno addome tozzo, zampe lunghe e pteroteche divergenti, sono molto simili a quelle dei Nemouridae, cui anche gli adulti risultano abbastanza somiglianti.

Di seguito vengono fornite le chiavi di identificazione delle sottofamiglie, dei generi e delle specie della regione italica, relative sia agli adulti che alle ninfe. Per ogni specie sono fornite una descrizione sintetica, notizie sulla autoecologia e sulla etologia nonché, ove necessario, osservazioni di interesse generale e informazioni sull'affinità sistematica. Sono infine riportate la distribuzione geografica e tutte le località note per la regione italica.

CHIAVE DELLE SOTTOFAMIGLIE

Adulti

1 Cerci dei maschi con almeno due cercomeri e con un'appendice basale. Assenza di cicatrici sul lato interno delle coxae. IX urosterno dei maschi molto grande, con i margini rilevati a forma di cucchiaio, sporgente oltre il X urosterno; nelle femmine il IX urosterno forma un'ampia placca postgenitale estesa fino alla base dei paraprocti. Paraprocti dei maschi complessi, asimmetrici (figg. 6/d, 8/e)..... Brachypterainae

- Cerci dei maschi monoarticolati, privi di appendice basale. Lato interno delle coxae con una cicatrice (figg. 11/d, 13/i). IX urosterno dei maschi molto sviluppato, formante un'ampia placca subgenitale. Nelle femmine la placca subgenitale è vestigiale o assente, ma il IX urosterno delle femmine non raggiunge la base dei paraprocti. Paraprocti dei maschi semplici, simmetrici, con due stili pari sclerificati..... Taeniopteryginae

Fig. 1. ♀ *Brachyptera risi* (Morton).

Ninfe

1 Tracheobranchie coxali assenti. Urotergi privi di appendici sclerificate spiniformi (fig. 3/a). .... Brachypterainae
- Tracheobranchie coxali telescopiche e retrattili (Fig. 10/b). Urotergi muniti di appendici sclerificate spiniformi (fig. 10/a, c-f)..... Taeniopteryginae

KEY TO SUBFAMILIES

Adults

1 Cerci of the male by at least two segments, and with a basicercal process. No scar on the inner side of each coxa. Male 9th sternum scoop-shaped, produced over and beyond the 10th sternum. Female 9th sternum produced to well beyond the base of the paraprocts. Male paraprocts complex and asymmetric (figs. 6/d, 8/e). ..... Brachypterainae
- Cerci of the male of a single segment, without any basicercal process. Inner side of each coxa with a scar (figs. 11/d, 13/i). Male 9th sternum not scoop-shaped, very little produced over the 10th sternum. Female 9th sternum fairly produced over the 10th sternum, not reaching the paraprocts. Male paraprocts simple with two paired symmetric styles. ..... Taeniopteryginae

Nymphs

1 Coxae with no gills. No knob-like processes on abdominal terga (fig. 3/a). ..... Brachypterainae
- Coxal gills present (fig. 10/b). Abdominal terga provided by knob-like sclerotized processes (fig. 10/a, c-f). ..... Taeniopteryginae

Sottofamiglia **Brachypterainae** (Fochetti & Zwick, 1992)

Genus typicum: *Brachyptera* Newport (*fide* Zwick 1973).

Lato interno delle coxe privo di cicatrici delle tracheobranchie, le quali sono assenti nelle ninfe. IX urosterno dei maschi molto sviluppato, con margini rilevati a forma di cucchiaio, allungato all'indietro ed in alto fino a sporgere al di sopra del X urosterno. I paraprocti sono asimmetrici e di struttura complessa; in *Brachyptera* e *Rhabdiopteryx* non sono visibili dall'esterno essendo posti tra l'epiprocto ed il IX urosterno. Berthélemy (1970) ha osservato che i paraprocti presentano differenze utili per il riconoscimento di talune specie, comunque estranee alla nostra fauna. L'esame dei paraprocti non è pertanto necessario per la determinazione delle specie presenti in Italia. A solo titolo di esempio nelle fig. 6/c e 8/e sono raffigurati rispettivamente i paraprocti di *Brachyptera risi* e *Rhabdiopteryx alpina*. Cerci dei maschi composti di almeno due cercomeri e muniti di un'appendice basale, costituita da un'espansione del primo cercomero. Nelle femmine, presso il margine posteriore dell'VIII urosterno, è presente una piccola placca che copre l'apertura genitale, la cui forma è talvolta utile per la determinazione specifica. Il IX urosterno è molto allungato, raggiunge e copre completamente o parzialmente i paraprocti (Zwick, 1973; Ricker & Ross, 1950).

Le ninfe hanno la conformazione tipica della famiglia precisata nel paragrafo precedente.

La sottofamiglia ha una distribuzione oloartica e comprende 8 generi con oltre 50 specie. Soltanto i generi *Brachyptera* e *Rhabdiopteryx,* sono presenti in Italia.

CHIAVE DEI GENERI

Adulti

1 Ala anteriore priva di venature trasversali fra C e Sc (fig. 2/a-b). IX urosterno dei maschi con una lamella basale..... *Brachyptera*
- Ala anteriore con 2 o più venature trasversali fra C e Sc (fig. 2/c). IX urosterno dei maschi privo di lamella basale. ..... *Rhabdiopteryx*

Ninfe

1 Lato superiore dei cerci coperto da lunghi peli. Capo con la sutura epicraniale a forma di U (fig. 3/a).....*Brachyptera*
- Lato superiore dei cerci privo di lunghi peli. Capo con la sutura epicraniale a forma di V (fig. 10/a). ..... *Rhabdiopteryx*

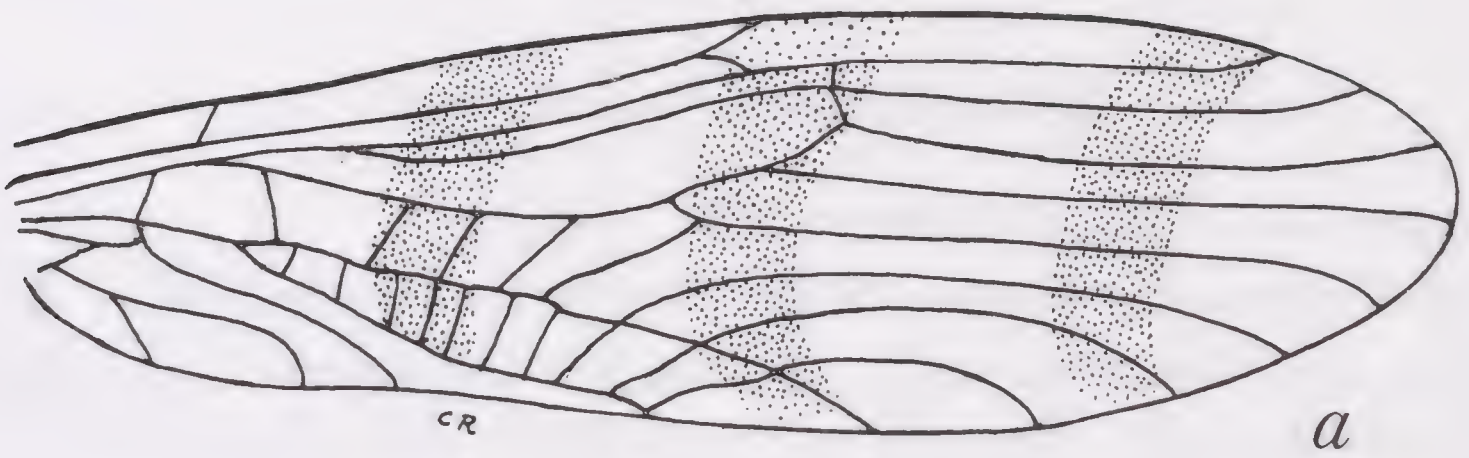
KEY TO GENERA

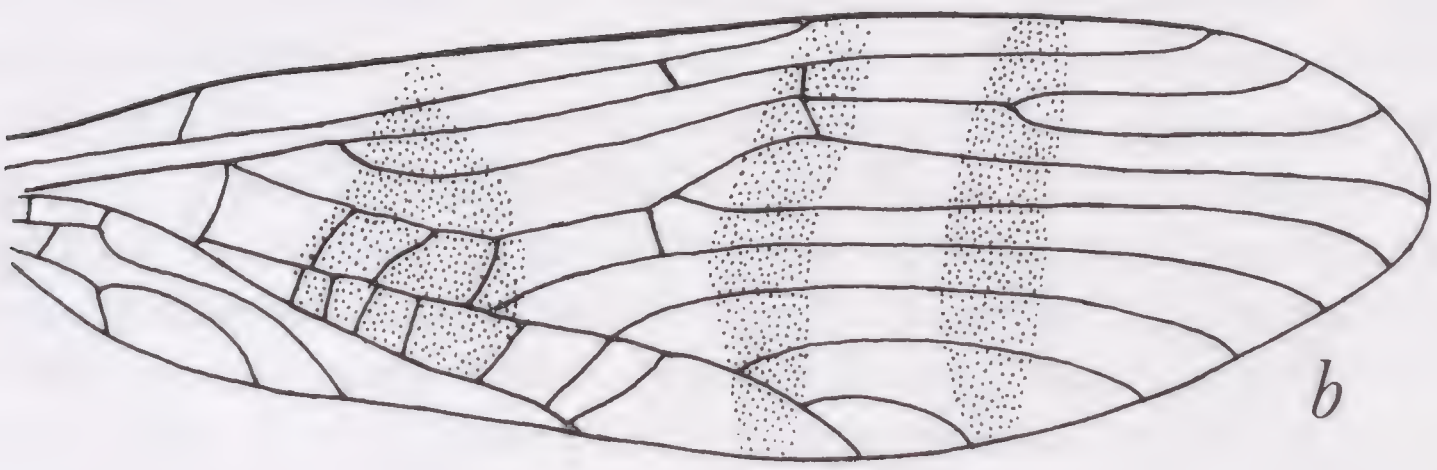
Adults

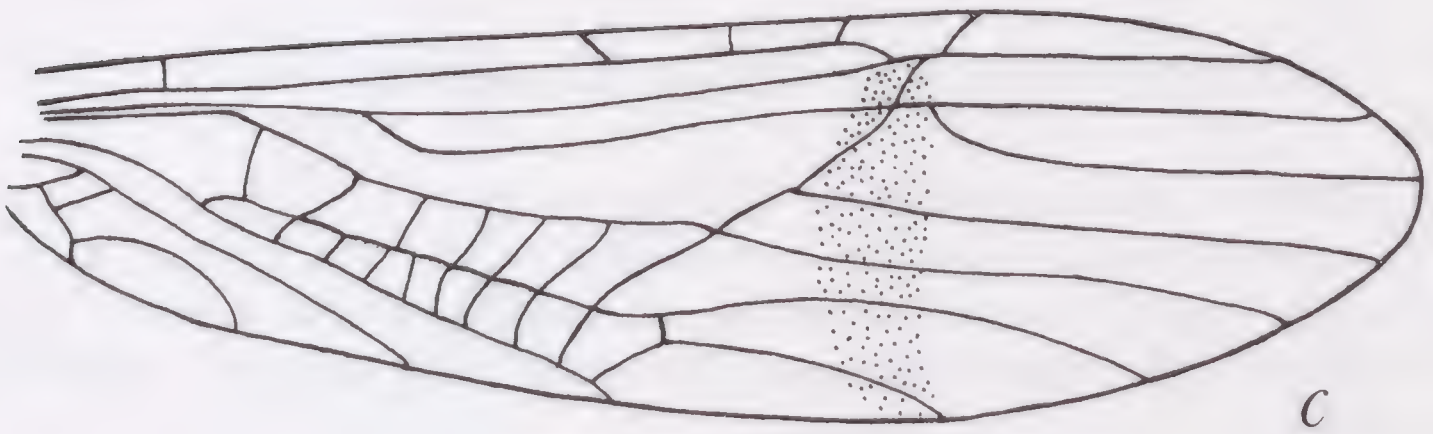
1 Forewing without cross-veins between C and Sc (fig. 2/a-b). Ninth sternite of male with a vesicle.... .....*Brachyptera*
- Forewing with 2 or more cross-veins between C and Sc (fig. 2/c). Ninth sternite of male without any vesicle. .....*Rhabdiopteryx*

Nymphs

1 Upper side of the cerci with long hairs. Head with a U-shaped epicranial suture (fig. 3/a). ....*Brachyptera*







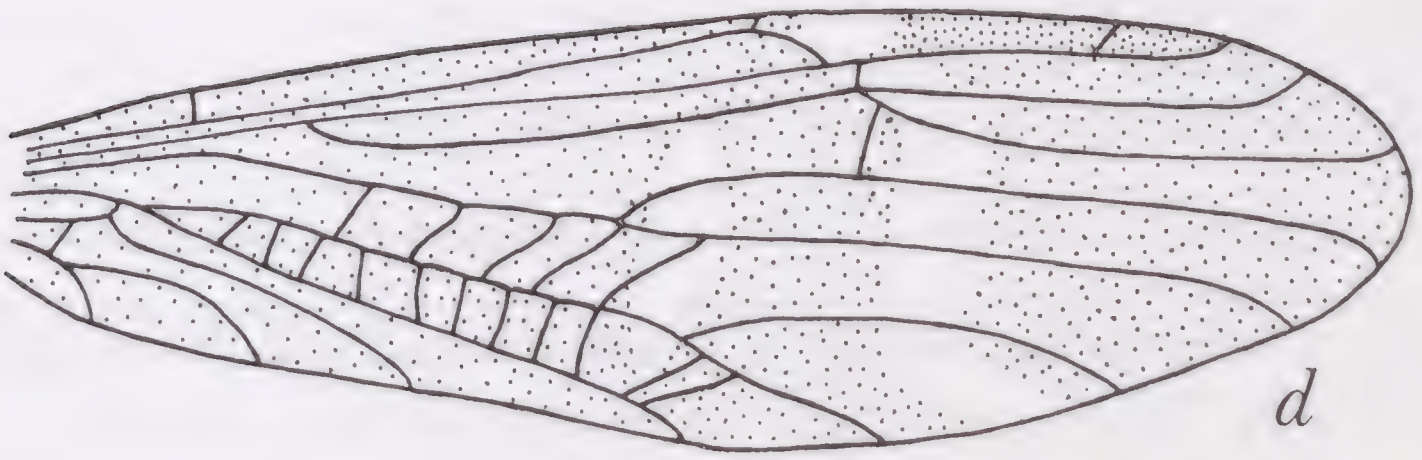


Fig. 2. Ala anteriore destra, a: di *Brachyptera risi* (Morton), b: di *Brachyptera seticornis* (Klapalek), c: di *Rhabdiopteryx neglecta* Albarda, d: di *Taeniopteryx kuehtreiberi* Aubert.

- Upper side of the cerci without long hairs. Head with a V-shaped epicranial suture (fig. 10/a) ....*Rhabdiopteryx*

Gen. **Brachyptera** Newport, 1851

Nemoura (Brachyptera) Newport, *fide* Kimmins 1970.

TYPUS GENERIS: *Nemoura trifasciata* Pictet, 1832 = *Brachyptera trifasciata* (Pictet).

DIAGNOSI: Specie di dimensioni medie. Nei maschi il IX urosterno, i cui margini sono rilevati a forma di cucchiaio, sporge oltre il X urosterno coprendo completamente i paraprocti. Una vescicola mediana è sempre presente alla base del IX urosterno. I cerci dei maschi sono brevi ed arrotondati, comprendenti almeno due cercomeri muniti di un'appendice basale. Nelle femmine il IX urosterno è esteso fino alla base dei paraprocti (Zwick, 1973; Ricker & Ross, 1950); i cerci sono corti, composti da pochi cercomeri.

Le ninfe hanno corpo liscio, con una sottile peluria visibile solo di profilo, pteroteche divergenti e zampe lunghe e sottili prive di tracheobranchie coxali. Entrambi i sessi possiedono una placca ventrale del IX urosterno di forma caratteristica. I paraprocti dei maschi hanno l'estremità distale appuntita ed in molte specie incurvata a gancio più o meno aperto. Le ninfe di molte specie di *Brachyptera* sono spiccatamente reofile; vivono per lo più in piena corrente, sulle superfici dei grandi massi prive di vegetazione macroscopica, nutrendosi di alghe microscopiche e microdetriti (Hynes, 1976; Madsen, 1968, 1969). Se minacciate assumonono un caratteristico comportamento di difesa, consistente nel ripiegarsi ventralmente incrociando antenne e cerci.

CHIAVE DELLE SPECIE ITALIANE DEL GENERE *BRACHYPTERA*

Maschi

1 Antenne "moniliformi", ossia a lati convessi (fig. 5/f); antennomeri compresi fra il V e il X poco più lunghi che larghi. Appendice basale dei cerci allungata e sclerificata (fig. 5/a, c, g, h). 2
- Antenne "setiformi", ossia a lati subparalleli (fig. 6/f, m); antennomeri compresi fra il V e il X circa una volta e mezzo più lunghi che larghi. Appendice basale dei cerci subglobosa e membranosa (fig. 6/a, g)..... 3
2 Microttero. Apice della sclerificazione dell'epiprocto intera (fig. 5/i). ..... *trifasciata*
- Macrottero. Apice della sclerificazione dell'epiprocto bifida (fig. 5/b)..... *monilicornis*
3 Settore (regione) radiale dell'ala anteriore con al più tre nervature (fig. 2/a). 4
- Settore (regione) radiale dell'ala anteriore con quattro nervature (fig. 2/b). ..... *seticornis*
4 Settore (regione) radiale dell'ala anteriore con tre nervature..... 5
- Settore (regione) radiale dell'ala anteriore con due nervature. Apice dell'epiprocto subcilindrico (fig. 4/f). .....*calabrica*
5 Appendice basale dei cerci sub sferica (Fig. 6/a-b). Estremità distale dello sclerite apicale dell'epiprocto come in Fig. 6/c. ..... *risi*
- Appendice basale dei cerci ovoidale (Fig. 4/a, c). Estremità distale dello sclerite apicale dell'epiprocto come in Fig. 4/b. ..... *auberti*

Femmine

1 Antenne "moniliformi" (fig. 5/*e*), antennomeri compresi fra il V e il X poco più lunghi che larghi. 2
- Antenne "setiformi" (fig. 6/*m*), antennomeri compresi fra il V e il X circa di una volta e mezzo

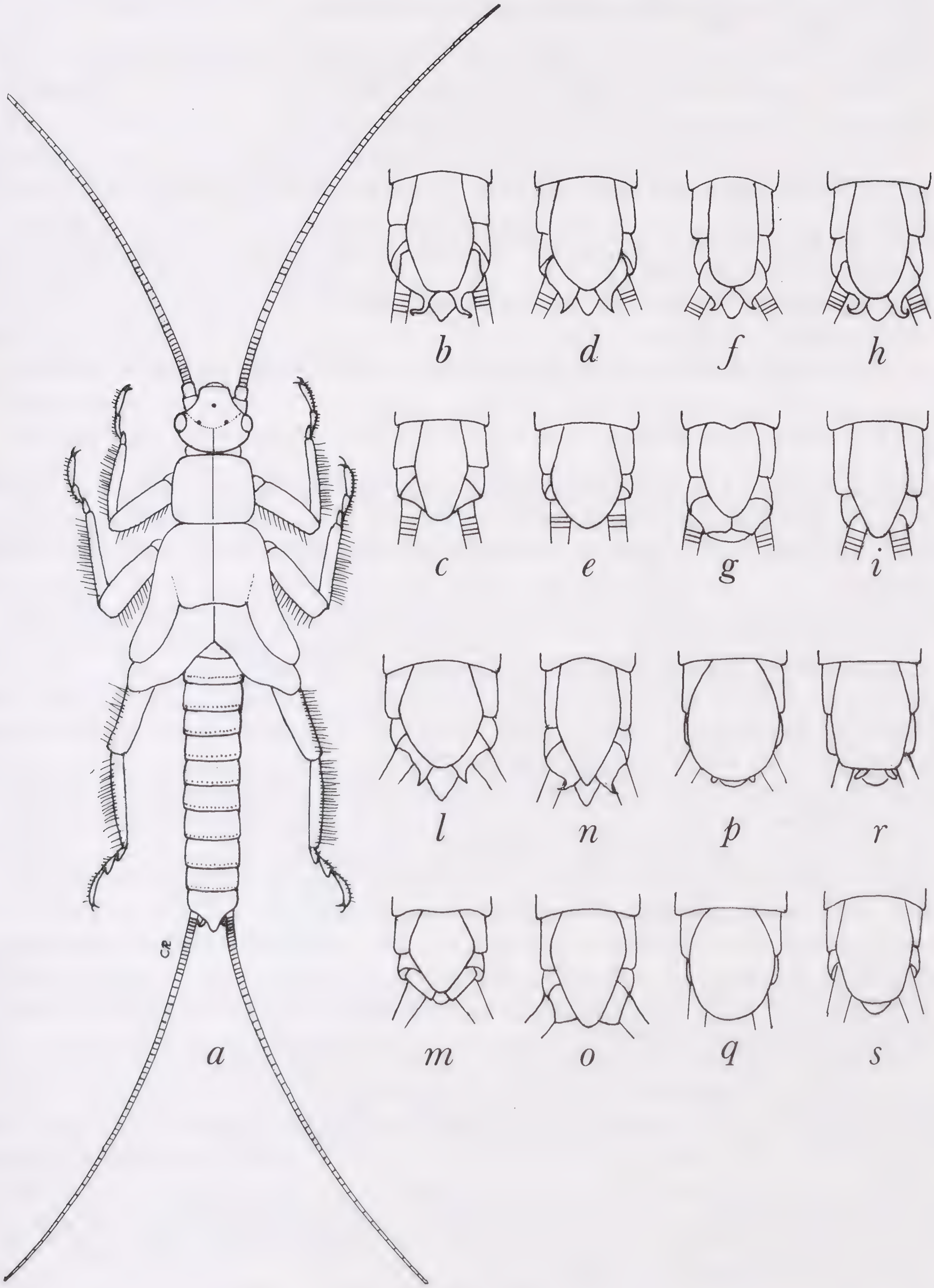


Fig. 3. Ninfe di Brachypterainae. a: disegno schematico di una *Brachyptera*. Estremità dell'addome in visione dorsale: b ♂ c ♀ di *B. auberti*; *d* ♂ *e* ♀ di *B. calabrica*; f ♂ g ♀ di *B. monilicornis*; h ♂ i ♀ di *B. risi*; l ♂ m ♀ di *B. seticornis*; n ♂ o ♀ di *B. trifasciata*; p ♂ q ♀ di *R. alpina*; r ♂ s ♀ di *R. neglecta* (*a* originale, *b-c* imitato da Ravizza, 1975b, *d-s* imitati da Aubert, 1953c, 1959).

più lunghi che larghi. 3
2 Base della placca postgenitale pigmentata. Margine anteriore sclerificato dell'apertura genitale molto piccolo (fig. 5/*l*). ..... *trifasciata*
- Base del IX urosterno pigmentata ai lati, meno nell'area mediana. Margine anteriore sclerificato dell'apertura genitale esteso sul terzo mediano (fig. 5/*d*). ..... *monilicornis*
3 IX urosterno con la metà prossimale dei lati sinuata. 4
- IX urosterno con la metà prossimale dei lati arrotondata (fig. 6/*l*). ..... *seticornis*
4 Estremità distale del IX urosterno affusolata. Margine posteriore del VII urosterno privo di pigmentazioni. 5
- Estremità distale del IX urosterno arrotondata. Margine posteriore del VII urosterno con due pigmentazioni pari (fig. 4/*h*). ..... *calabrica*
5 Margine anteriore sclerificato dell'apertura genitale costituito da due lobi separati da uno spazio subtrapezoidale o arciforme (fig. 6/*e*). ..... *risi*
- Margine anteriore sclerificato dell'apertura genitale costituito da due lobi contigui (fig. 4/*d*)..... .....*auberti*

Ninfe

1 Corpo dorsalmente scuro bruno-grigio o bruno-verde. Urotergi di colore uniforme, ad eccezione del X che presenta due piccole macchie chiare alla base. 2
- Corpo dorsalmente giallastro o testaceo con disegni grigio-bruni. Urotergi bruni con macchie o fasce chiare. 5
2 Corpo robusto con il pronoto nettamente più largo del capo. Estremità dei paraprocti del maschio debolmente incurvata verso l'esterno. Placca ventrale del IX urosterno della femmina meno di una volta e mezzo più lunga che larga con apice assottigliato. 3
- Corpo slanciato con il pronoto appena più largo del capo. Estremità dei paraprocti del maschio fortemente incurvati verso l'esterno. Placca ventrale del IX urosterno della femmina sub trapezoidale, più di una volta e mezzo più lunga che larga. 4
3 Macchie chiare alla base del X urotergo subquadrate, larghe all'incirca quanto la base del cerco. Estremità dei paraprocti del maschio corta e acuminata (fig. 3/*l*). Placca ventrale del IX urosterno della femmina circa di una volta e 1/4 più lunga che larga (fig. 3/*m*). ..... *seticornis*
- Macchie chiare alla base del X urotergo sub triangolari, larghe all'incirca la metà della base del cerco. Estremità dei paraprocti del maschio tozza e appuntita (fig. 3/*d*). Placca ventrale del IX urosterno della femmina più stretta, da una volta e 3/8 a una volta e mezzo più lunga che larga (fig. 3/*e*). ..... *calabrica*
4 Estremità dei paraprocti del maschio curvata a gancio (fig. 3/*h*). Placca ventrale del IX urosterno della femmina come in fig. 3/*i*. ..... *risi*
- Estremità dei paraprocti del maschio piegata verso l'esterno con l'apice ritorto posteriormente (fig. 3/*b*). Placca ventrale del IX urosterno della femmina come in fig. 3/*c*..... *auberti*
5 Pteroteche del maschio normalmente sviluppate. Estremità dei paraprocti del maschio debolmente ricurva verso l'esterno (fig. 3/*f*). Placca ventrale del IX urosterno della femmina come in fig. 3/*g* ..... *monilicornis*
- Pteroteche del maschio ridotte ad un terzo delle dimensioni normali. Estremità dei paraprocti del maschio molto sottile e debolmente ricurva verso l'esterno (fig. 3/*n*). Placca ventrale del IX urosterno della femmina come in fig. 3/*o*. ..... *trifasciata*

KEY TO THE ITALIAN SPECIES OF THE GENUS *BRACHYPTERA*

Males

1 Antennae moniliform (round sides) (fig. 5/*f*). Antennal segment between 5 and 10 just a little longer than wide. Basicercal process elongated and sclerotized (fig. 5/*a, c, g, h*). 2

- Antennae filiform (sub parallel sides). Antennal segment between 5 and 10 one time and a half longer than wide (fig. 6/*f, m*). Basicercal process rounded and membranous. 3
2 Short winged. Distal tip of the apical sclerites entire (fig. 5/*i*). ..... *trifasciata*
- Fully winged. Distal tip of the apical sclerites forked (fig. 5/*b*). ..... *monilicornis*
3 Radial sector of forewing with at the most 3 branches. 4
- Radial sector of forewing with 4 branches (fig. 2/b). ..... *seticornis*
4 Radial sector of forewing with 3 branches. 5
- Radial sector of forewing with 2 branches. Distal tip of the apical sclerites sub cylindrical (fig. 4/*f*). ..... *calabrica*
5 Basicercal process spheroid (fig. 6/*e*). ..... *risi*
- Basicercal process ovoid (fig. 4/*d*). ..... *auberti*

Females

1 Antennae moniliform, (round sides) (fig. 5/*f*). Antennal segment between 5 and 10 just a little longer than wide. 2
- Antennae filiform (sub parallel sides) (fig. 6/*m*). Antennal segment between 5 and 10 one time and a half longer than wide. 3
2 Ninth sternite pigmented at the base. Anterior margin of the sclerotized genital opening very small (fig. 5/*l*). ..... *trifasciata*
- Ninth sternite pigmented at the base sides, lighter at its median part. Anterior margin of the sclerotized genital opening extended to the median third (fig. 5/*d*). ..... *monilicornis*
3 Ninth sternite sides sinuate in their proximal half (fig. 6/*l*). ..... *seticornis*
- Ninth sternite sides rounded in their proximal half. 4
4 Ninth sternite tapering towards the tip, leaving visible most of the paraprocts. Hind margin of the VII sternite lacking any paired pigmentation. 5
- Ninth sternite widely rounded towards the tip, hiding almost completely the paraprocts. Hind margin of the VII sternite with two paired pigmentation (fig. 4/*h*). ..... *calabrica*
5 Anterior sclerotized margin of the genital opening constituted by two lobes separated by each other by either a subtrapezoidal or an arched space (fig. 6/*e*). ..... *risi*
- Anterior sclerotized margin of the genital opening constituted by two adjacent lobes (fig. 4/*d*) .. .. *auberti*

Nymphs

1 Dorsal side of body brown-grey or green-grey. Abdominal terga uniform in colour, excepted the 10th supporting at the anterior margin two paired pale spots. 2
- Dorsal side of body yellowish or reddish with some grey-brown drawings. Abdominal terga brown, with pale spots or strips. 5
2 Body strong with the pronotum clearly wider than head. Extremity of the male paraprocts slightly bent outwards. Ninth sternum plate of female, less than one time and a half longer than wide, tapering towards the tip. 3
- Body slender with the pronotum just a little wider than head. Extremity of the male paraprocts strongly bent outwards. Ninth sternum plate of female, subtrapezoidal, more than one time and a half longer than wide. 4
3 Paired spot at the 10th tergum anterior margin sub quadrangular, their width is about as wide as the base of cercus. Extremity of the male paraprocts short and pointed (fig. 3/*l*). Ninth sternum plate of female about one time and a quarter longer than wide (fig. 3/*m*). ..... *seticornis*
- Paired spot at the 10th tergum anterior margin subtriangular, their width is about as wide as half of the base of cercus. Extremity of the male paraprocts short and stocky (fig. 3/*d*). Ninth sternum plate of female from one time and 3/8 to one time and a half longer than wide (fig. 3/*e*). ....

.....*calabrica*

4 Extremity of the male paraprocts bent like a hook (fig. 3/*h*). Ninth sternum plate of female as in fig. 3/*i*.. .....*risi*

- Extremity of the male paraprocts bent outwards with the tip twisted backwards (fig. 3/*b*). Ninth sternum plate of female as in fig. 3/*c*. ..... *auberti*
- Male wing pads fully developed. Extremity of the male paraprocts slightly bent outwards (fig. 3/*f*). Ninth sternum plate of female as in fig. 3/*g*. ..... *monilicornis*
- Male wing pads reduced to one third of their normal dimension. Extremity of the male paraprocts thin, pointed at the tip, slightly bent outwards (fig. 3/*n*). Ninth sternum plate of female as in fig. 3/*o*. ..... *trifasciata*

Brachyptera auberti Consiglio, 1957

Brachyptera auberti Consiglio, 1957a, 36: 34, fig. 1-6.
Brachyptera mussardi Aubert, 1960, 33: 215, fig. 1-7.

LOCUS TYPICUS: Italia, Sardegna, Nuoro, ruscello tributario del Rio Lucula, m 670.

DESCRIZIONE: Lunghezza del corpo: ♂ 7,5-11,0 mm, ♀ 7,5-12,0 mm; lunghezza dell'ala anteriore ♂ 8,5-11,5 mm, ♀ 9,5-12,5 mm. Capo di colore fulvo con macchie e fasce brune sulla fronte ed il clipeo, e vermicolazioni brune occipitali. Pronoto fulvo con vermicolazioni bruno-scure. Zampe, antenne e palpi fulvo-brune. Ali normalmente sviluppate in ambedue i sessi, leggermente infumate con tre fasce trasversali più scure.

Addome del maschio (fig. 4/a,c). Urotergi dal III al IX pigmentati presso il margine anteriore che è incavato nella porzione centrale. X urotergo con il margine anteriore incavato e quello posteriore bilobato. Epiprocto con ampolla basale emisferica ed apice allungato (fig. 4/*b*).

Addome della femmina (fig. 4/*d*). Margine anteriore dell'apertura vaginale con due lobi contigui poco sclerificati. Placca postgenitale del IX urosterno pentagonale, a lati sub paralleli ed apice sub triangolare arrotondato all'estremità.

Ninfa matura. Lunghezza mm 9-12. In ambedue i sessi la placca ventrale ha una forma romboidale con angoli arrotondati (fig. 3/b-c), il rapporto lunghezza/larghezza è compreso fra 1,7 ed 1,9 (Ravizza, 1975b). Appendici distali dei paraprocti dei maschi con una peculiare doppia piegatura.

AFFINITÀ: Affine all'allopatrica *B. risi*. I maschi (adulti e ninfe) di *B. auberti* sono facilmente riconoscibili da quelli di *B. risi* par i caratteri evidenziati nella tabella dicotomica; per contro la distinzione delle femmine (adulti e ninfe) di queste specie è problematica e solo la netta separazione dei loro areali consente una sicura determinazione.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie reofila diffusa nei corsi d'acqua minori di Corsica e Sardegna fra 200 e 1000 m. Periodo di volo IV-VI.

DISTRIBUZIONE GEOGRAFICA: Mediterraneo occidentale. Sardegna, Spagna e Marocco. Secondo Zwick (1971) questa specie sarebbe sopravvissuta, dall'Eocene o dall'Oligocene confinata sui resti della Tirrenide. Nella regione italica è presente soltanto in Corsica e Sardegna.

Corsica - Col d'Ilarata F. Oso m 940 (Consiglio, 1957 sub nomen *Brachyptera* sp.); Monacia d'Aullene, ruscello presso Montagna di Cagna!

Sardegna - Nuoro, Buddusò (Consiglio, 1957a); Villanova Monteleone r. Monteleone m 350,

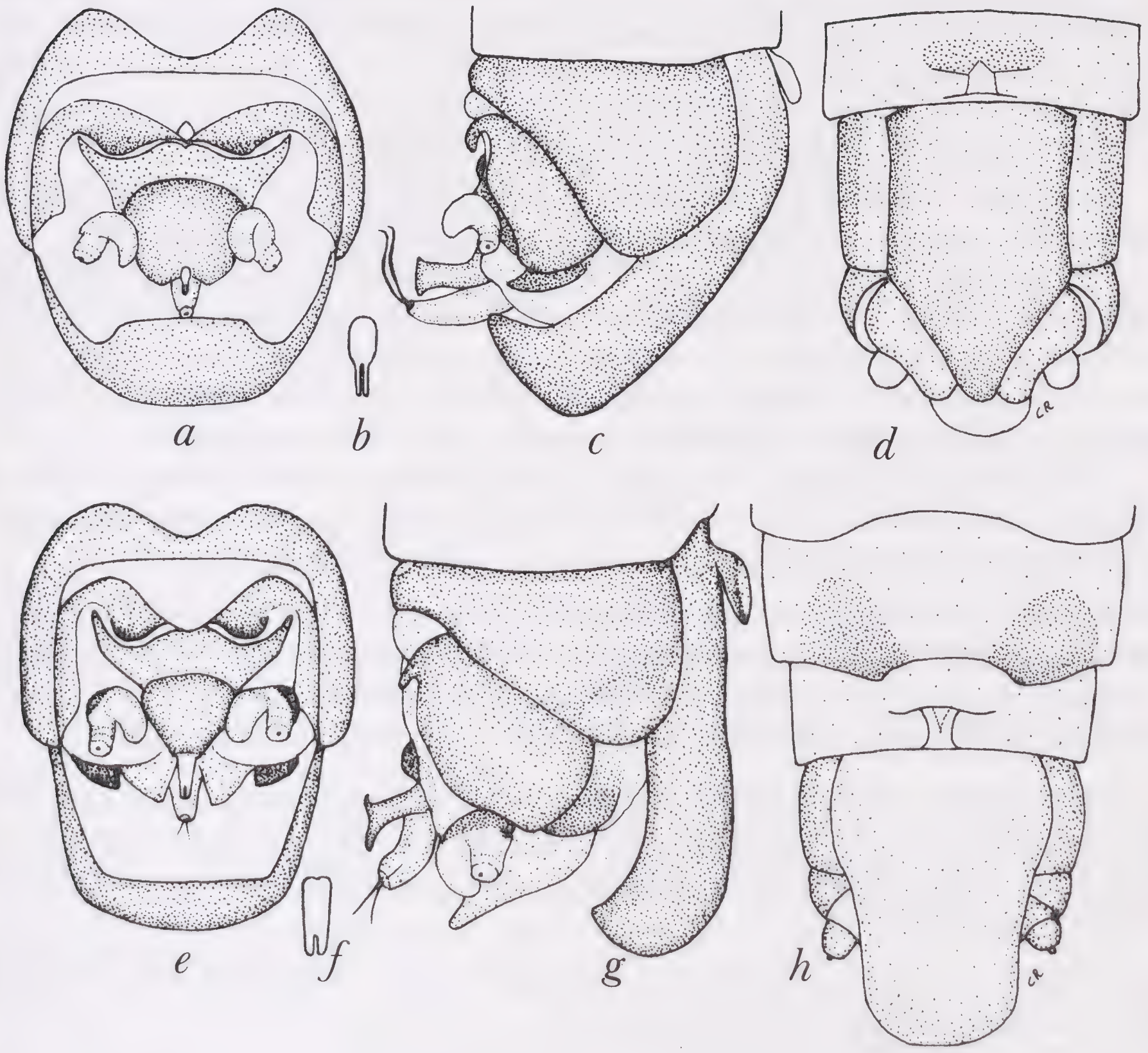


Fig. 4. *Brachyptera auberti* Consiglio. Estremità dell'addome del ♂ visto dorsalmente (*a*) e di lato (*c*); apice della sclerificazione dell'epiprocto in visione dorsale (*b*); estremità dell'addome della ♀ in visione ventrale (*d*); *Brachyptera calabrica* Aubert. Estremità dell'addome del ♂ visto dorsalmente (*e*) e di lato (*g*); apice della sclerificazione dell'epiprocto in visione dorsale (*f*); estremità dell'addome della ♀ in visione ventrale (*h*).

Pattada r. Oschiri m 490, Sorgono r. passo S'Isco sa Mela m 950, Aritzo r. m 1020 (Ravizza, 1975b). Ozieri aff. Rio Mannu m 200, Telti Rio Taroni m 350, Oschiri Rio Terramala m 240, Bitti F. Tirso m 780, Pattada Rio Mannu de Pattada m 600, Asuai aff. Rio Vatzu m 850, Sorgono aff. Rio Mannu m 750, Fonni Rio de Talesso m 925 (Fochetti e Nicolai, 1987). Cuglieri r. di Sennariolo m 350! M. Ferru sorg. Badde Urbara m 870! Gallura La Maciona r. Piatu m 210! M. Limbara sorg. m 1000 e Rio Parapinta m 900! F. Tirso sorgenti m 800!

Brachyptera calabrica Aubert, 1953

Brachyptera calabrica Aubert, 1953: 7-10, fig. 8-15.

LOCUS TYPICUS: Italia, Calabria, Sila, torrente Neto m 1,200.

DESCRIZIONE: Lunghezza del corpo: ♂ 8-11 mm, ♀ 9-13 mm; lunghezza dell'ala anteriore ♂ 11-12 mm, ♀ 12,5-14,0 mm. Capo bruno giallastro con vermicolazioni brune verso la nuca. Pronoto subtrapezoidale, poco più largo del capo, di colore bruno giallastro con vermicolazioni brune. Zampe, antenne e palpi bruno giallastre. Ali normalmente sviluppate in ambedue i sessi con tre fasce trasversali più scure; settore radiale con due nervature.

Addome del maschio (fig. 4/*e, g*). Placca subgenitale a lati subrettilinei, rialzata nel terzo distale. Epiprocto con ampolla basale e sclerite apicale pigmentato (fig. 4/*f*).

Addome della femmina (fig. 4/*h*). Gli ultimi tre urosterni completamente pigmentati; le aree sclerificate pari del margine posteriore del VII urosterno sporgono sull'VIII urosterno. Placca ventrale linguiforme, più lunga che larga, sporgente in addietro, con una debole pigmentazione marginale. Margini laterali dell'orifizio genitale non pigmentati, margine anteriore un poco pigmentato su una fascia ristretta. Cerci corti ed arrotondati.

Ninfa matura. Lunghezza del corpo mm 9-12. Placca ventrale di forma ogivale in entrambi i sessi, circa una volta e mezzo più lunga che larga (fig. 3/*d-e*). Appendici distali dei paraprocti dei maschi appuntite e divergenti (Aubert, 1953c).

AFFINITÀ: *B. calabrica* mostra notevoli affinità con *B. risi* e *B. seticornis*, dalle quali si distingue facilmente per la colorazione più chiara del capo e del pronoto, per la diversa conformazione e la più accentuata pigmentazione dello sclerite apicale dell'epiprocto del maschio, e per la presenza di due macchie pari sul VII urosterno delle femmine.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie reofila-crenofila propria delle sorgenti e dei ruscelli montani dalle Marche alla Sicilia. Vive prevalentemente a quote comprese fra 1.000 e 1.800 m; in Sicilia è stata raccolta in alcune sorgenti fredde fra 650 e 750 m. Periodo di volo III-VI.

DISTRIBUZIONE GEOGRAFICA: Centro-sud appenninica sicula, endemica della regione italica, nella quale ci è nota delle seguenti località.

Marche - fra Visso e Castelsantangelo f. Nera (Consiglio, 1967).

Abruzzo - Campotosto sorg. f. Vomano m 1170-1200!; Pietracamela Prati di Tivo r. m 1450!; Opi val Fondillo m 1200-1350, Villetta Barrea vallone Profluo m 1300 (Consiglio. 1958a); Pescasseroli (Consiglio, 1967). Capitignano f. Aterno m 950.

Campania - Monti Picentini Piano Verteglia m 1180 (Consiglio, 1958b).

Basilicata - M. Pollino (Aubert, 1953c, 1959a); Mezzana Frido t. Frido m 1500 (Aubert, 1959a); La Maddalena, Madonna di Viggiano Acqua dei Pastori (Nicolai & Fochetti, 1991a); Madonna di Viggiano r. m 1400!; La Maddalena M. Arioso, La Sellata r. M. Arioso, M. Vulturino f. Fiesca, M. Vulturino sorg., Rifreddo, M. Pettinascuro (Nicolai & Fochetti, 1991a); P. Pedarreto!.

Calabria - (Sila): Sila Piccola (Aubert, 1953b); Camigliatello t. Mucone m 1200-1400 e t. Neto m 1200-1300. Spezzano di Sila t. Morelli m 1400-1600 (Aubert, 1953c, 1959a); Cargno, f. Arvo, M. Botte Donato sorg., Fossiata f. Lese, f. Garga (Nicolai & Fochetti, 1991a); (Serre): Ferdinandea t. Stilaro (Nicolai & Fochetti, 1991a). (Aspromonte): Aspromonte t. Cannavi (Consiglio, 1967); S. Eufemia d'Aspromonte cippo Garibaldi m 1200!; S. Stefano d'Aspromonte Gambarie m 1250!.

Sicilia - (Madonie): Petralia Sottana trib. f. Imera merid. m 1060 (Consiglio, 1961). (Nebrodi): Randazzo f. Alcantara (Fochetti & Nicolai, 1987). Chiusitta t. Saracena m 1200, Cesarò t Cutò presso Vitalone m 750 (Ravizza & Gerecke, 1991); M. Soro Portella Femmina Morta m 1430 (Consiglio, 1961). M. Soro Portella Femmina Morta m 1460 (Consiglio, 1961). M. Soro Portella Maulazzo (Fochetti & Nicolai, 1987); T. Tordi (Fochetti & Nicolai, 1987); T. Tordi m 1300, Serra del Re sorg. m

1650 (Ravizza & Gerecke, 1991) San Fratello f. S. Fratello (Fochetti & Nicolai, 1987). (Monti di nordovest): Piana degli Albanesi valle Salice presso S. Cristina Gela m 640, Lumi i Varfrit m 620 (Ravizza & Gerecke, 1991).

Brachyptera monilicornis (Pictet, 1842)

Nemoura (Taeniopteryx) monilicornis Pictet, 1841: 357, tav. 357 Fig. 1-3.
Taeniopteryx kempnyi Klapalek, 1902:15.
Brachyptera kempnyi Despax, 1951: 39; Aubert, 1946: 33.
Brachyptera monilicornis Illies, 1955: 27-28, 30-31, Fig. 12e, 13e; Aubert, 1959: 30-32, Fig. 31, 35,42; Kis, 1974: 54-55, 60-61, Fig. 22.

LOCUS TYPICUS: Svizzera, Ginevra, torrente Arve.

DESCRIZIONE: Lunghezza del corpo: ♂ 7-10 mm, ♀ 8-11 mm; lunghezza dell'ala anteriore ♂ 9-11 mm, ♀ 10.0-12,5 mm. Macrottera in entrambi i sessi, ali con tre fasce trasversali ed una piccola macchia preapicale.

Addome del maschio (fig. 5/*a, c*). Placca subgenitale larga, con il margine posteriore arrotondato e poco rilevato. Vescicola ventrale di forma ovoidale. Epiprocto con ampolla basale grande, depressa al centro e sclerite apicale tozzo, con apice bifido costituito da due lobi divergenti con estremità arrotondata (fig. 5/*b*).

Addome della femmina (fig. 5/*d*). Placca postgenitale all'incirca lunga quanto larga, un po' ristretta nella metà distale.

Ninfa matura. Lunghezza del corpo mm 8-12. Placca ventrale del maschio lunga più del doppio della larghezza, con il margine posteriore subtroncato; nella femmina essa è circa una volta e mezzo più lunga che larga (fig. 3/*f-g*). Appendici distali dei paraprocti dei maschi tozzi, appuntiti e poco incurvati (Aubert, 1946, sub nom. *B. kempnyi*).

AFFINITÀ: La caratteristica forma subglobosa degli antennomeri (fig. 5/*e-f*), consente di separare facilmente questa specie dalle congeneri. Si distingue dall'affine *B. trifasciata* per i caratteri addominali richiamati nella chiave dicotomica ed illustrati nelle figure.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie poco comune con distribuzione molto discontinua. Si localizza nei corsi d'acqua di pianura ed in quelli submontani a quote non superiori a 500 metri. Periodo di volo II-IV.

OSSERVAZIONI: La rarità di questa specie in tutto il suo areale di diffusione era già stata messa in risalto da Albarda (1889). La sua sporadicità non sembra pertanto da collegarsi al deterioramento del corsi d'acqua di bassa quota.

DISTRIBUZIONE GEOGRAFICA: Elemento medioeuropeo raro in tutto il suo areale di distribuzione. E stata segnalata in pochissime località dell'Italia continentale e peninsulare.

Piemonte - (App. Ligure): Cartosio Gaini t. Erro m 185, Ponte Erro t. Erro m 290 (Ravizza, 1976); Acqui (Consiglio, 1962).

Trentino-Alto Adige - Rovereto, Civezzano, Merano (Ausserer, 1869, reperti dubbi secondo Consiglio, 1967, ma, a nostro avviso, verosimili).

Liguria - (App. Ligure): Pontinvrea t. Erro m 400 (Ravizza, 1976); Capriate d'Orba t. Orba m 130!; Molare trib. t. Orba m 200!; Molare t. Orba m 200-350!

Umbria - Migliano fosso Fersinone m 500 (Fochetti, 1994).

Lazio - (Antiappennino) M.ti della Tolfa f. Mignone m 20-100 (Nicolai & Fochetti, 1981, 1983b).

Brachyptera risi (Morton, 1896)

Taeniopteryx risi Morton, 1896: 56 tav. 2 fig.1-3.
Brachyptera risi Illies, 1955: 27-28, fig. 12a, 14a Despax, 1951: 29-33, 38-39, fig. 13; Aubert, 1959: 30-32, fig. 32, 36, 40, 43; Kis, 1974: 54-55, 57-58, fig. 19.

LOCUS TYPICUS: Svizzera, Zurigo (Illies, 1966).

DESCRIZIONE: Lunghezza del corpo: ♂ 8,0-11,5 mm, ♀ 9,0-13,5 mm; lunghezza dell'ala anteriore ♂ 9-12 mm, ♀ 9-13 mm. Colore del capo e del pronoto da bruno chiaro a fulvo, con vermicolazioni più scure. Zampe bruno giallastre, antenne e palpi bruni. Ali normalmente sviluppate, infumate con nervature sottili e tre fasce trasversali più scure (fig. 2/*a*).

Addome del maschio (fig. 6/*a-b*). Placca subgenitale molto lunga con l'estremità incurvata a cucchiaio verso l'alto. Epiprocto con ampolla basale larga, sclerite apicale snello, allargato verso l'apice che è bifido (fig. 6/*c*).

Addome della femmina (fig. 6/*e*). Placca post-genitale pentagonale, nettamente più lunga che larga; i lati subrettilinei o debolmente concavi della metà distale convergono in addietro fino all'apice.

Ninfa matura. Lunghezza del corpo mm 8-12. Placca ventrale di entrambi i sessi circa del doppio più lunga che larga con il margine posteriore arrotondato, più rastremato nella femmina (fig. 3/*h-i*). Appendici distali dei paraprocti dei maschi ben sclerificati, grandi e ricurvi ad uncino (Aubert, 1946).

AFFINITÀ: Molto simile all'allopatrica *B. auberti*.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie reofila a larga diffusione nel corso basale e submontano dei torrenti alpini ed appenninici. Periodo di volo di circa tre mesi compreso fra II-VI, spostato verso la primavera avanzata in relazione all'aumentare della quota.

OSSERVAZIONI: Molti dati sull'ecologia preimmaginale di *B. risi* sono noti grazie alle accurate ricerche pluriennali di Madsen (1968, 1969, 1972, 1976b). Un'importante componente dell'alimentazione di *B. risi* sembra essere costituita dai batteri, che vengono ingeriti assieme al peryphiton raschiato dai sassi mediante le sue mascelle specializzate. Le ninfe sono legate ai substrati sassosi e sebbene possano trovare cibo in abbondanza anche sulle foglie esposte alla corrente, tendono a localizzarsi sopra i sassi in piena corrente, ai quali si aggrappano saldamente tenendovi il corpo a stretto contatto. Durante le mute di accrescimento è indispensabile per le ninfe fissarsi ad un substrato stabile cui aderiscono agrappandosi saldamente con le unghie; la superficie delle foglie non sembra garantire una presa altrettanto sicura. Madsen (1976a) ha anche studiato, per mezzo del classico sistema del marcaggio e ricattura, i movimenti degli adulti lungo il corso d'acqua. Sono stati accertati spostamenti sia verso valle che verso monte, con un maggiore numero di esemplari ricatturati a monte.

DISTRIBUZIONE GEOGRAFICA: Elemento europeo a distribuzione estensiva dalla Scandinavia alle penisole mediterranee e dalla Gran Bretagna alla Russia. E' la specie più ampiamente diffusa nella regione italica.

Piemonte - (Alpi Liguri): Ormea f. Tanaro m 680 (Ravizza & Ravizza Dematteis, 1977); Cumiana, Priola, fra Mondovì e Ceva (Consiglio, 1967). (Alpi Pennine): Valduggia t. Strona m 400! Romagnano f. Sesia m 260! (App. Ligure): Cartosio Gaini t. Erro m 185, Ponte Erro t. Erro m 290 (Ravizza, 1976).

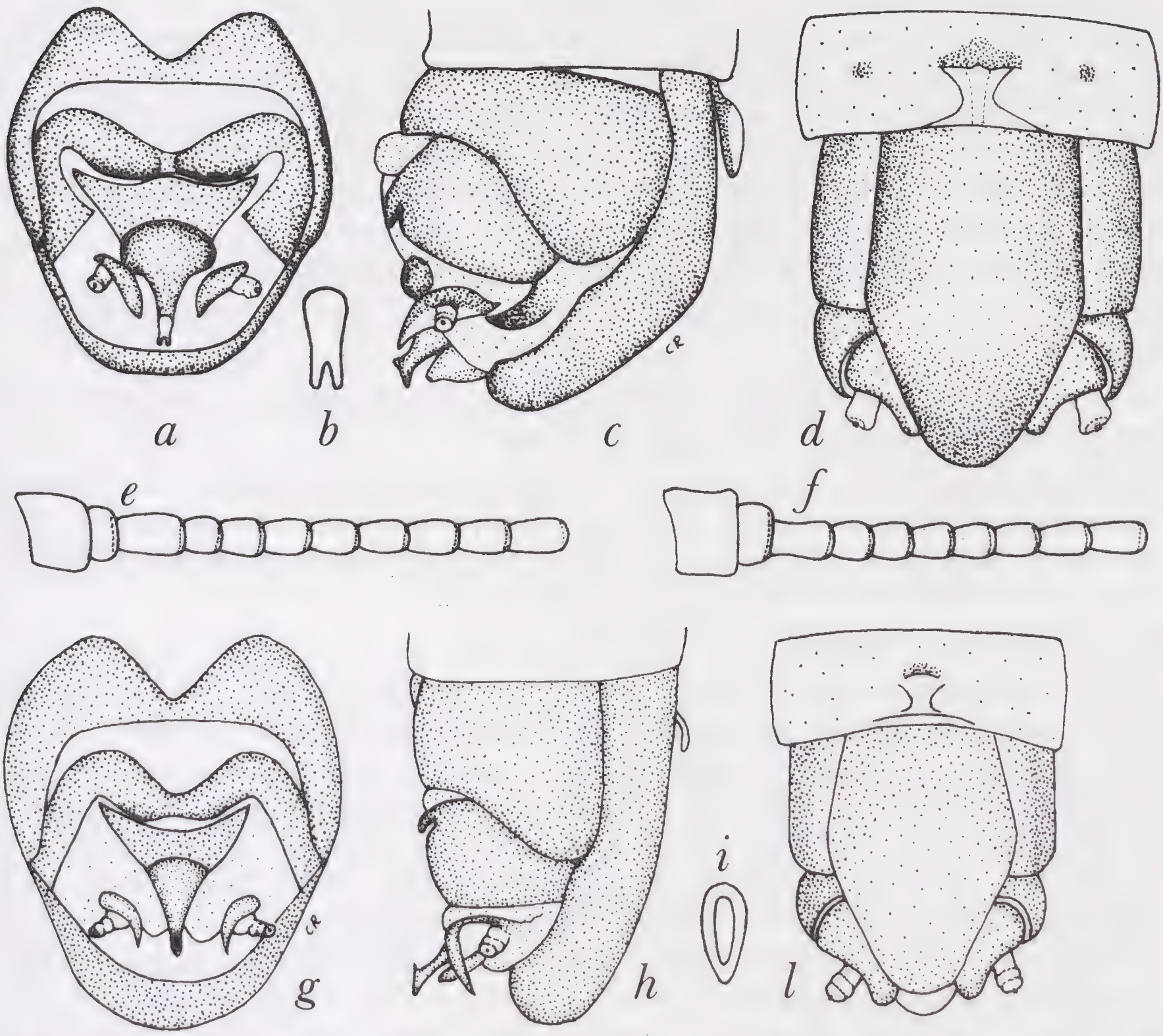


Fig. 5. *Brachyptera monilicornis* (Pictet). Estremità dell'addome del ♂ visto dorsalmente (*a*) e di lato (*c*); apice della sclerificazione dell'epiprocto in visione dorsale (*b*); estremità dell'addome della ♀ in visione ventrale (*d*); porzione basale dell'antenna della ♀ (*e*) e del ♂ (*f*). *Brachyptera trifasciata* (Pictet). Estremità dell'addome del ♂ visto dorsalmente (*g*) e di lato (*h*); apice della sclerificazione dell'epiprocto in visione dorsale (*i*); estremità dell'addome della ♀ in visione ventrale (*l*).

Svizzera, Ticino - (Alpi Lepontine): Roveredo val Colla t. m 730 (Aubert et al., 1996).

Lombardia - (Prealpi): Arcumeggia t. Marianna m 600!; Vararo t. S. Giulio m 620!; S. Michele t. Chiesone m 800!; Pezzoro!; Brembilla t. Brembilla m 500 (Ravizza, 1975a); (App. Ligure): Costiolo del Giovà sorg. t. Staffora m 1300-1343, Pianostano t. Staffora m 750, Casanova t. Staffora m 600, Casanova S. rio Torbido m 570, S. Martino di Varzi t. Arronchio m 500 (Ravizza, 1974).

Veneto - Tarzo (Minelli, 1993).

Trentino-Alto Adige - (Alpi Retiche): Condino f. Chiese m 460!

Friuli-Venezia Giulia - (Prealpi Giulie): Castelmonte trib. t. Iudrio, S. Leonardo t. Erbezzo (Nicolai, 1983c); Bagnoli della Rosandra t. Rosandra m 70, Savogna t. Rieca (Fochetti & Nicolai, 1985). Tarcento t. Torre!

Liguria - (Alpi Liguri): Colle del Melogno r. Franchella (Aubert, 1954a); Calizzano, Colle di Nava, Toirano, Boissano (Consiglio, 1967). (App. Ligure): Savona r. Porassino m 770 (Ravizza & Ravizza Dematteis, 1983); Montenotte Sup. t. Erro m 650-750, Pontinvrea Repiano t. Tortone m 600-700 (Ravizza, 1976); Capriate d'Orba t. Orba m 130!; Priosa di Rezzoaglio t. Aveto m 800!; Cordeia r. m 1200!

Emilia-Romagna - Ferriere r. immiss. lago Moo m 1100-1225! Ferriere t. Nure m 550, Farini d'Olmo t. Nure m 430, Bettola t. Nure m 300, Ponte dell'Olio t. Nure m 230, Podenzano t. Nure m 110 (Ravizza & Ravizza Dematteis, 1979b); Lagdei di Corniglio t. Parma m 1250; Bosco di Corniglio t. Parma m 950; Le Ghiare di Corniglio t. Parma m 470-500; Langhirano t. Parma m 250 (Ravizza & Ravizza Dematteis, 1994); Pannocchia t. Parma!; Passo dei Mandrioli, Campigna (Consiglio, 1960); M. Falco Foresta di Campigna (Consiglio, 1971); La Stretta, Foresta Lama (Fochetti & Campadelli, 1988); Cullacce m 1050!

Toscana - Castell'Azzara, S. Fiora f. Fiora, Seggiano t. Vivo (Nicolai & Fochetti, 1981).

Marche - fra Visso e Castelsantangelo (Consiglio, 1967); Arcevia, f. Misa!; Fabriano t. Belvedere m 700!

Lazio - Posta, Fiamignano (Consiglio, 1967); Monti della Tolfa f. Mignone m 50-300 (Nicolai & Fochetti, 1983b). Monterufeno f. Falscione e f. Subissone!

Abruzzo - Campotosto sorg. f. Vomano m 1170-1200!; Gioia dei Marsi Padule m 1300, Pescasseroli Campomizzo Acqua Ventilata m 1250, Pescasseroli Ponte Abbeveratoio f. Sangro m 1147, Villetta Barrea vallone Profluo m 1250 (Consiglio, 1958a); Colli di M. Bove, fra S: Pellino e Marana (Consiglio, 1967); Val di Porta!; Palena t. Aventino m 780!

Molise - Pescolanciano f. Trigno (Nicolai & Fochetti, 1991a).

Calabria - (Sila): Camigliatello t. Mucone m 1200-1400 e t. Neto m 1200-1300 (Aubert, 1953c, 1959a); Fossiata f. Lese (Nicolai & Fochetti, 1991a). (Aspromonte): Gambarie (Consiglio, 1961).

Sicilia - (Centro-sud): Nicosia f. Cerami m 415, F. Salso m 550 (Ravizza & Gerecke, 1991). (Madonie): Castelbuono t. Vicarietto m 365 (Fochetti & Nicolai, 1987). Collesano Piano Zucchi, r. m 1000, Piano Zucchi, r. m 720 (Ravizza & Gerecke 1991); Petralia Soprana trib. F. Salso m 990 (Consiglio, 1961). Petralia sott. f. Imera merid. m 1000 (Aubert, 1957a). (Nebrodi): Randazzo f. Alcantara (Fochetti & Nicolai, 1987). Chiusitta t. Saracena m 1200, Nicosia M. Campanito m 1200, M. Campanito, laghetto Campanito m 1257, Cesarò t. Cutò presso Vitalone m 750 (Ravizza & Gerecke, 1991). (Monti di nordovest): Corleone t. Casale m 475, Montemaggiore Belsito Pizzo Conca, trib. f. Torto m 550, Piana degli Albanesi valle Salice presso S. Cristina Gela m 640, Maganoce fontana m 615, Portella della Paglia f. Iato m 800, Lupotto valle Catagnano m 590 (Ravizza & Gerecke, 1991).

Brachyptera seticornis (Klapalek, 1902)

Taeniopteryx seticornis Klapalek, 1902, 25: 168; Kühtreiber, 1934: 48-49, fig.26.
Brachyptera seticornis Despax, 1951: 29-33, 36-38, fig. 12; Illies, 1955: 27, 28-29, fig. 12b, 13a-d, 14b; Aubert, 1959: 30-32, fig. 33, 37,44; Kis, 1974: 54-56, fig. 18.

LOCUS TYPICUS: Ungheria, Rézbánya.

DESCRIZIONE: Lunghezza del corpo: ♂ 8-12 mm, ♀ 9-15 mm; lunghezza dell'ala anteriore ♂ 9-13 mm, ♀ 11,0-14,5 mm. Colorazione generale da bruna più o meno scura a grigia; capo mediamente più chiaro del pronoto, quest'ultimo di colore bruno-rossastro con vermicolazioni scure più fitte nell'area distale. Ali normalmente sviluppate, a nervature ben visibili, con tre fasce brune trasversali (fig. 2/*b*).

Addome del maschio (fig. 6/*g-h*). Placca subgenitale larga, con il margine posteriore regolarmente arrotondato e poco rilevato. Vescicola ventrale grande. Epiprocto con ampolla basale emisferica e sclerite apicale breve, subquadrato, a lati subparalleli ed apice con una incisione mediana (fig. 6/*i*).

Addome della femmina (fig. 6/*l*). Placca postgenitale tozza, poco ristretta nella

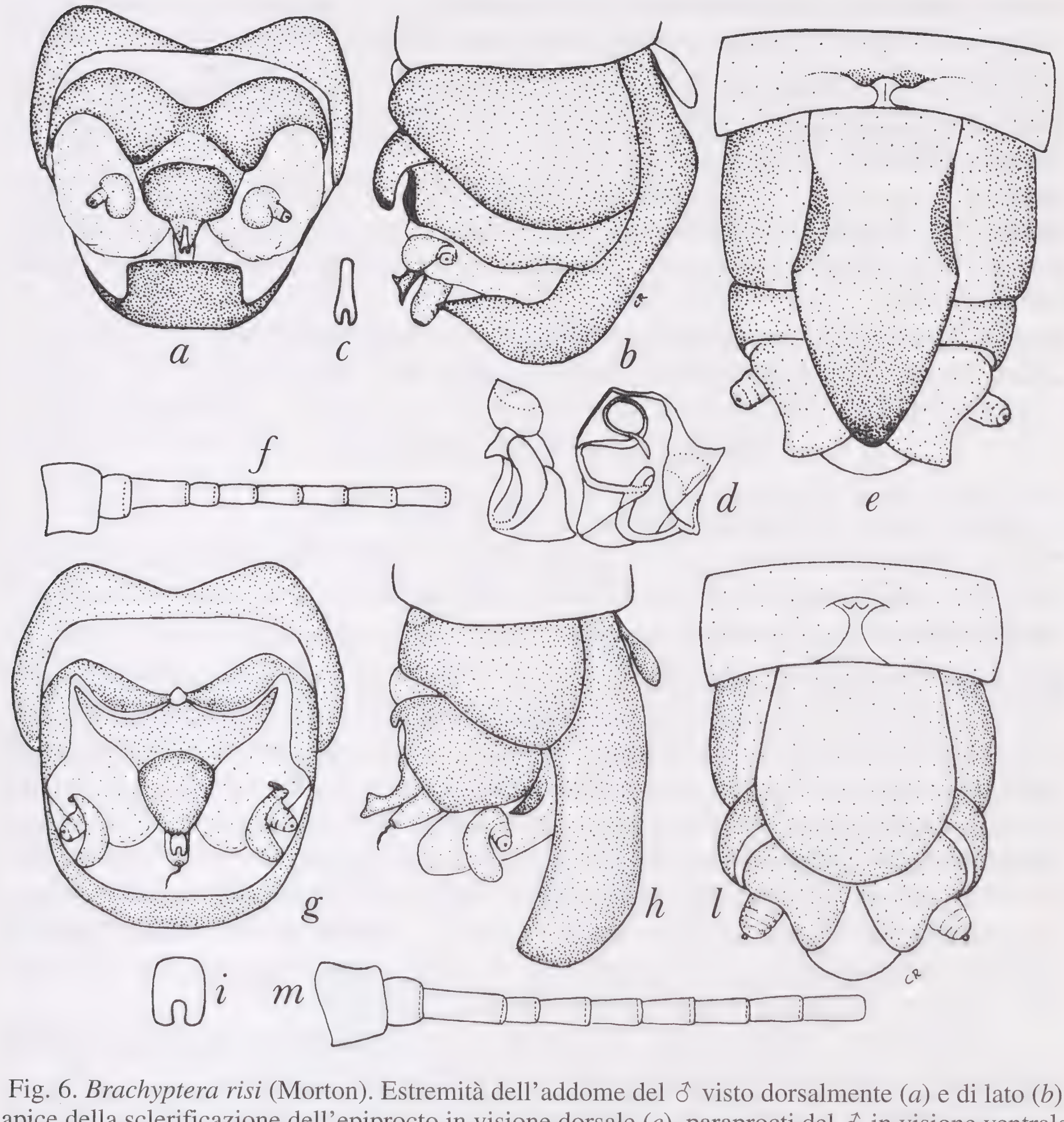


Fig. 6. *Brachyptera risi* (Morton). Estremità dell'addome del ♂ visto dorsalmente (*a*) e di lato (*b*), apice della sclerificazione dell'epiprocto in visione dorsale (*c*), paraprocti del ♂ in visione ventrale (*d*); estremità dell'addome della ♀ in visione ventrale (*e*); porzione basale dell'antenna del ♂ (*f*). *Brachyptera seticornis* (Klapalek). Estremità dell'addome del ♂ visto dorsalmente (*g*) e di lato (*h*); apice della sclerificazione dell'epiprocto in visione dorsale (*i*), estremità dell'addome della ♀ in visione ventrale (*l*); porzione basale dell'antenna del ♂ (*m*).

metà distale e margine posteriore arrotondato, poco pigmentata.

Ninfa matura. Lunghezza del corpo mm 8-13. Placca ventrale del maschio poco più larga che lunga con il margine posteriore arrotondato, della femmina poco più lunga che larga, con il margine posteriore più rastremato (fig. 3/*l-m*). Appendici distali dei paraprocti dei maschi con base larga ad apici acuminati e appena divergenti (Aubert, 1946) .

AFFINITÀ: La peculiare conformazione delle placche subgenitale del maschio e postgenitale della femmina permettono di separare con sicurezza questa specie dalle congeneri.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie reofila piuttosto rara in Italia, segnalata di poche località delle Alpi a quote comprese fra 400 e 1600 m. Periodo di volo IV-V.

DISTRIBUZIONE GEOGRAFICA: Elemento a distribuzione mediosudeuropea segnalato nell'Europa centrale, Alpi, penisola iberica e Balcani. Nella regione italica è segnalata discontinuamente in poche località delle Alpi.

Piemonte - (Alpi Liguri): Certosa di Pesio Pian delle Gorre r. m 1160! (Alpi Pennine): Andrate t. Viona m 950! Graglia r. m 1000! Biella Favaro t. Oropa m 650 (Ravizza & Ravizza Dematteis, 1990, 1991); Valduggia t. Strona m 400!; Balangera f. Sesia m 500! Borgosesia Valduggia (Aubert 1954a).

Trentino-Alto Adige - Sesto Alpe di Nemes t. Klamm m 1600 (Fochetti, 1994).

Liguria - (Alpi Liguri): Colle del Melogno r. Franchella (Aubert, 1954a).

Brachyptera trifasciata (Pictet, 1842)

Nemoura (Taeniopteryx) trifasciata Pictet, 1832: 351-354, tav. 44-45.
Taeniopteryx trifasciata Kühtreiber, 1934: 46-48, fig. 24-25.
Brachyptera trifasciata Despax, 1951: 29-35, fig. 10; Illies, 1955: 27, 29-30, fig. 12c, 14f; Aubert, 1959: 30-32, fig. 30, 34, 38-39, 41; Kis, 1974: 54-55, 62 fig. 23

LOCUS TYPICUS: Svizzera, Ginevra, fiume Arve.

DESCRIZIONE: Lunghezza del corpo: ♂ 6-9 mm, ♀ 10-12 mm; lunghezza dell'ala anteriore ♂ 2,5-3,5 mm, ♀ 6,7-13 mm. Questa specie è caratterizzata da un accentuato dimorfismo sessuale. I maschi, di colore bruno giallastro, sono brachitteri, con l'ala anteriore più corta di quella posteriore. Il loro corpo è più piccolo e sottile rispetto a quello delle femmine. Queste ultime sono macrottere, più robuste, con i tegumenti bruni. Le ali presentano tre sottili fasce brune trasversali ed una macchia apicale.

Addome del maschio (fig. 5/*g-h*). Placca subgenitale a forma di ampio cucchiaio progressivamente rilevato nel terzo distale. Vescicola ventrale piccola, ovale. Epiprocto con ampolla basale piriforme, allungata, con lo sclerite apicale ovoidale (fig. 5/*i*). Lobo basale dei cerci falciforme, con l'estremità distale acuminata.

Addome della femmina (fig. 5/*l*). Placca postgenitale di forma pentagonale con angoli esterni arrotondati, completamente pigmentata nel terzo basale.

Ninfa matura. Lunghezza del corpo mm 8-12. Pteroteche ridotte nei maschi, normalmente sviluppate nelle femmine. Placca ventrale di forma ogivale in entrambi i sessi, circa del doppio più lunga che larga, con estremità distale affusolata (fig. 3/*n-o*). Appendici distali dei paraprocti dei maschi piccole, sottili e poco divergenti (Aubert, 1946) .

L'uovo è stato dettagliatamente descritto ed illustrato da Degrange (1957). La ninfa matura è stata descritta da Pictet. Ulteriori descrizioni ed illustrazioni in Kühtreiber (1934) e Aubert (1946).

AFFINITÀ: I suaccennati caratteri morfologici consentono di distinguere questa specie dalle congeneri presenti in Italia, compresa l'affine *B. monilicornis* i cui maschi sono macrotteri.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie fluviale a diffusione mediosudeuropea. Periodo di volo III-IV.

OSSERVAZIONI: Specie gravemente minacciata di estinzione in tutto il suo areale.

Probabilmente è estinta già da molti decenni nella regione italica (Ravizza & Nicolai, 1983), dove l'ultima segnalazione risale a mezzo secolo fa. Accurate ricerche svolte in quest'ultimo ventennio sia nell'Adige che nel Sesia (Ravizza & Zwick 1981), non hanno consentito di ritrovare alcun esemplare di questa specie. Essa è considerata estinta in Germania (Zwick, 1984) e non è stata più campionata negli ultimi cinquant'anni nella località tipica e nell' intera regione ginevrina (Knispel, 1996).

DISTRIBUZIONE GEOGRAFICA: Specie medioeuropea. In passato era stata segnalata in pochissime località dell'Italia settentrionale.

Piemonte - Torino (Pictet, 1841 in Consiglio 1967); (Alpi Pennine): Varallo Sesia (Calderini, 1869 sub nom. *Nemoura nebulosa*; Ravizza & Zwick, 1981).

Veneto - Verona f. Adige (Festa, 1939 sub nom. *Taeniopteryx trifasciata*).

Trentino-Alto Adige - ("Molto comune in tutta la fauna" Ausserer, 1869 sub nom. *Taeniopteryx trifasciata*); Rovereto (Festa, 1947 sub nom. *Taeniopteryx trifasciata*).

Gen. **Rhabdiopteryx** Klapalek, 1902

Rhabdiopteryx Klapalek, 1902: 179.

TYPUS GENERIS: *Taeniopteryx hamulata* Klapalek = *Rhabdiopteryx hamulata* (Klapalek)

DIAGNOSI: Ali normalmente sviluppate; in posizione di riposo sovrapposte di piatto sull'addome. Le ali anteriori con 2 o 3 venature trasversali fra C e Sc. Maschi con il margine posteriore del IX urosterno ad angoli arrotondati e debolmente rilevato. Il IX urosterno, privo di vescicola, sporge oltre il X urosterno coprendo completamente i paraprocti. I cerci sono composti nei maschi da 4 o 5 cercomeri muniti di un'appendice basale, e da 3 o 4 cercomeri nelle femmine. Nelle femmine l'apertura genitale è posta centralmente, presso il margine posteriore dell'VIII urosterno; il IX urosterno è molto sviluppato ed esteso fino alla base dei paraprocti.

Le ninfe hanno il medesimo *habitus* di quelle del genere *Brachyptera*, ma il colore del dorso è costantemente più chiaro.

CHIAVE DELLE SPECIE ITALIANE DEL GENERE *RHABDIOPTERYX*

Maschi

1 Appendice basale dei cerci costituita da due lobi uniti basalmente (Fig. 8/*c*)..... *neglecta*
- Appendice basale dei cerci costituita da un singolo lobo (Fig. 8/*a*). ..... *alpina*

Femmine

1 Bordi posteriori dell'apertura genitale dell'VIII urosterno convergenti (Fig. 8/*d*). ..... *neglecta*
- Bordi posteriori dell'apertura genitale dell'VIII urosterno divergenti (Fig. 8/*b*). ..... *alpina*

Ninfe

1 IX urosterno più piccolo e corto. Il cercomero tanto lungo quanto largo è compreso fra l'8° e il 12°. .....*neglecta*
- IX urosterno più grande. Il cercomero tanto lungo quanto largo è compreso fra il 15° e il 20°..... ..... *alpina*

KEY TO THE ITALIAN SPECIES OF THE GENUS *RHABDIOPTERYX*

Males

1 Basal process of cercus with two lobes (Fig. 8/*c*)..... *neglecta*
- Basal process of cercus with only one lobe (Fig. 8/*a*). ..... *alpina*

Fig. 7. *Rhabdiopteryx neglecta* ♂ Albarda.

Females

1 Posterior edges of the genital opening converging (fig. 8/*d*). ..... *neglecta*
- Posterior edges of the genital opening diverging (fig. 8/*b*). ..... *alpina*

Nymphs

Ninth sternite smaller. Cercal segment as long as wide comprised between the 8th and the 12th. ..... *neglecta*
- Ninth sternite bigger. Cercal segment as long as wide comprised between the 15th and the 20th. ..... *alpina*

Rhabdiopteryx alpina Kühtreiber, 1934

Rhabdiopteryx alpina Kühtreiber, 1934: 54-56, fig. 27, 34-38; Illies, 1955: 31-32, 33, fig. 16; Aubert, 1959: 33. fig. 45, 47; Kis, 1974: 64-66. fig. 25;

LOCUS TYPICUS: Austria, Nordtirol.

DESCRIZIONE: Lunghezza del corpo: ♂ 9-13,5 mm, ♀ 10-14 mm; lunghezza dell'ala anteriore ♂ 11-13 mm, ♀ 11.5-13,5 mm. Colorazione generale bruna scura o grigio ferro; capo bruno o nero con macchie rossastre. Ali normalmente sviluppate infumate di grigio con nervature nerastre.

Addome del maschio (fig. 8/*a*). Placca subgenitale grande e subrettangolare a lati subparalleli, margine posteriore subrettilineo ed angoli arrotondati. Epiprocto con una porzione basale membranosa subglobosa e sclerite apicale lungo e sottile con apice biforcato. Cerci con una sola appendice basale.

Addome della femmina (fig. 8/*b*). Lobi interni dell'apertura genitale convessi, avvicinati fra loro nella parte mediana e divergenti all'indietro. Placca postgenitale con lati e margine posteriore arrotondati.

Ninfa matura. Lunghezza del corpo mm 8-13. Placca ventrale con il margine posteriore debolmente arrotondato (fig. 3/*p-q*).

AFFINITÀ: In media più grande e robusta di *R. neglecta,* dalla quale si distingue per i caratteri esposti nella chiave.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie ampiamente diffusa nelle Alpi e Prealpi, sia nei torrenti di fondovalle che nei ruscelli, a quote comprese fra 1.000 e 2.600 m. Periodo di volo IV-VII generalmente con un picco degli sfarfallamenti in maggio.

DISTRIBUZIONE GEOGRAFICA: Specie alpino-carpatica. Ampiamente diffusa nelle Alpi centrali ed occidentali, finora non segnalata in quelle orientali.

Piemonte - (Alpi Liguri): Upega t. Negrone m 1450 (Ravizza & Ravizza Dematteis, 1977); Certosa di Pesio Pian delle Gorre r. m 1160! (Alpi Cozie): Castelmagno t. Grana m 1950-2000, Chiappi t. Grana m 1600, Pradleves t. Grana m 800-1000 (Ravizza & Ravizza Dematteis, 1986); Marmora trib. t. Maira m 1170 (Consiglio, 1967); Piano della Regina f. Po m 1700, Crissolo f. Po m 1380, Crissolo r. Tossiet m 1150-1200 (Ravizza Dematteis & Ravizza, 1988); (Alpi Graie): Balme trib. t. Stura di Ala m 1400, Lago Agnel m 2300 (Consiglio, 1967); (Alpi Pennine): Andrate t. Viona m 950!; Donato r. m 950!; Biella Favaro t. Oropa m 650, Biella Oropa t. Oropa m 1200-1500, r. Orone m 1350 (Ravizza & Ravizza Dematteis, 1990, 1991); Mollia f. Sesia m 900!

Valle D'Aosta - (Alpi Graie) La Thuile val Chavannes r. m 2100!; Gr. S. Bernardo r. m 2200!; Prarayer r. m 2200! (Alpi Pennine): Cervinia t. Marmore m 2000!; Brusson Col Ranzola m 2000!; Gressoney-la-Trinité t. Lys m 1850!; Gressoney-la-Trinité t. Lys m 1600!

Svizzera, Ticino - (Alpi Lepontine): Cassarate val Colla t. m 900-1000, All'Acqua f. Ticino m 1600, Ghirone t. Brenno m 1250 (Aubert et al., 1996).

Svizzera, Grigioni - (Alpi Lepontine): Val Mesolcina Pian S. Giacomo t Moesa m 1170 (Aubert et al., 1996).

Lombardia - (Alpi Orobie): Mezzoldo Ponte dell'Acqua r. m 1300, Cambrembo f. Brembo m 1350, Roncobello t. Valsecca m 1500 (Ravizza, 1975a); Paisco t. Allione! (Alpi Retiche): Ponte di Legno t. Oglio Frigidolfo m 1600!; Foscagno r. Vallaccia m 2150-2250, Passo di Gavia r. Gavia m 2600 (Ravizza & Ravizza Dematteis, 1994).

Trentino-Alto Adige - (Alpi Retiche): Solda t. Sulden m 1900!; Solda Rif. Città di Milano m 2700!

Rhabdiopteryx neglecta Albarda, 1889

Taeniopteryx neglecta Albarda, 1889: 61-63, tav. I fig. 11-13; Klapalek, 1909: 60, fig. 92.
Rhabdiopteryx neglecta Kühtreiber, 1934: 51, fig. 28, 32-35; Despax, 1951: 45-46, fig. 12; Illies, 1955: 31-32, fig. 15; Aubert, 1959: 33, fig. 46, 48; Kis, 1974: 64-65, 67-68, fig. 27.

LOCUS TYPICUS: Francia, Savoia, Faucigny (Illies, 1966).

DESCRIZIONE: Lunghezza del corpo: ♂ 8-11 mm, ♀ 8-12 mm; lunghezza dell'ala anteriore ♂ 10,0-12,5 mm, ♀ 11-15 mm. Colorazione generale grigio ferro o nerastra. Capo uniformemente bruno o nero nelle popolazioni alpine, più o meno rossastro in quelle appenniniche. Ali normalmente sviluppate infumate di grigio con forti nervature nerastre; le anteriori possiedono una fascia trasversale più scura.(fig. 2/*c*).

Addome del maschio (fig. 8/*c*). Placca subgenitale grande, ristretta in addietro nella

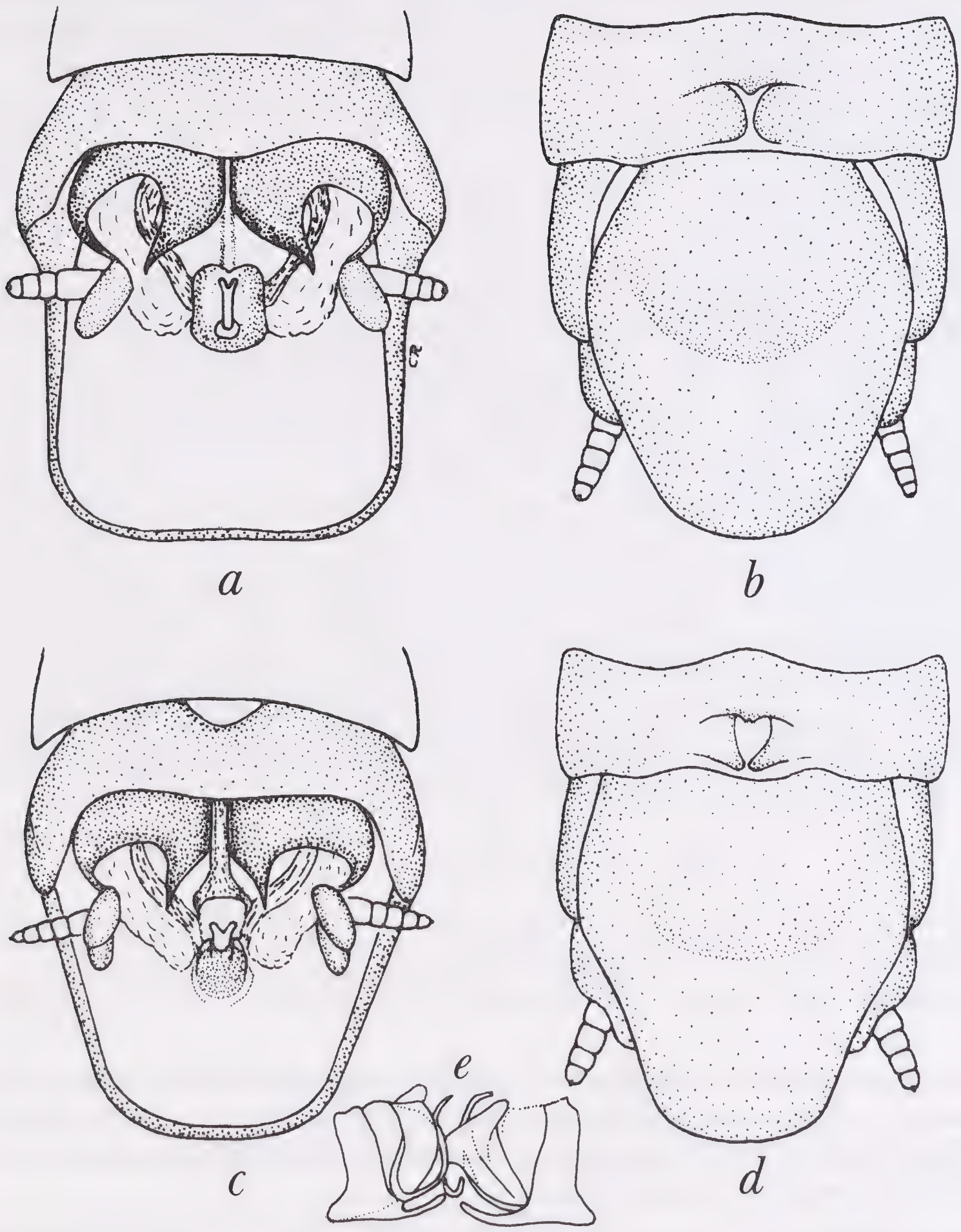


Fig. 8. *Rhabdiopteryx alpina* Kühtreiber. Estremità dell'addome del ♂ visto dorsalmente (*a*); estremità dell'addome della ♀ in visione ventrale (*b*). *Rhabdiopteryx neglecta* Albarda. Estremità dell'addome del ♂ visto dorsalmente (*c*), paraprocti del ♂ in visione ventrale (*e*); estremità dell'addome della ♀ in visione ventrale (*d*).

metà distale, con lati subrettilinei o leggermente concavi. Epiprocto con parte basale appiattita e sclerite apicale tozzo, con apice biforcato. Cerci con appendice basale bilobata.

Addome della femmina (fig. 8/*d*). Apertura genitale con lobi interni convergenti posteriormente ed apici contigui.

Ninfa matura. Lunghezza del corpo mm 8-12. Placca ventrale con il margine posteriore subrettilineo (fig. 3/*r-s*).

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Comune e talvolta abbondante in primavera. Le

ninfe si sviluppano indifferentemente nei grossi torrenti di fondovalle e nei ruscelli montani dell'Italia continentale, peninsulare ed in Sicilia a quote comprese fra 200 e 1500 metri s.l.m. Nelle Alpi può talora insediarsi fino a 2000 m (Aubert, 1959). All'inizio della primavera gli adulti si trovano non di rado sulla neve. Periodo di volo III-VI.

OSSERVAZIONI: Aubert (1953) istituì la sottospecie *italica* sulla base degli esemplari da lui raccolti in Calabria, che differivano dalla forma tipica per avere il capo ed il pronoto con aree rosso brunastre, anziché essere uniformemente scuri. La contemporanea presenza di esemplari ascrivibili sia alla forma tipica che alla forma *italica* è stata accertata in molte popolazioni dell'Appennino centro settentrionale (Ravizza & Ravizza Dematteis, 1986). Non avendo rilevato alcuna differenza morfologica oltre alle differenze di colore reputiamo, in conformità del parere espresso dal Prof. Aubert (*in verbis*), che il carattere cromatico non giustifichi la validità della sottospecie *italica*.

DISTRIBUZIONE GEOGRAFICA: Elemento mediosudeuropeo ampiamente diffuso in tutta la regione italica ad esclusione di Corsica e Sardegna.

Piemonte - (Alpi Liguri): Ormea f. Tanaro m 680 (Ravizza & Ravizza Dematteis, 1977); Certosa di Pesio Ardua t. Pesio m 1000!; Chiusa di Pesio S. Bartolomeo t. Pesio m 600!; Garessio, Vinadio, fra Cuneo e Mondovì, Limone, Pietraporzio (Consiglio, 1967). (Alpi Cozie): Pradleves t. Grana m 800-1000 (Ravizza & Ravizza Dematteis, 1986). (Alpi Pennine): Valduggia t. Strona m 400!; Balangera f. Sesia m 500! (App. Ligure): Cabella Ligure t. Borbera!

Valle d'Aosta - Sarre f. Dora Baltea m 500!

Svizzera, Ticino - (Prealpi): Scudellate val Muggio t. m 720 (Aubert et al., 1996). (Alpi Lepontine): Mezzovico, Bellinzona, Riveo, Lumino, Giubiasco, Airolo, Camignolo t. Vedeggio m 400, Cassarate val Colla t. m 900-1000, Olivone t. Brenno m 850, Ghirone t. Brenno m 1250 (Aubert et al., 1996).

Lombardia - (Prealpi): Vedeseta t. Enna m 660!, Oltre il Colle t. Parina m 850 (Ravizza, 1975a); (Alpi Orobie) Mezzoldo f. Brembo m 1380; Cassiglio t. Stabina m 800! (Alpi Retiche): Ponte di Legno t. Oglio Frigidolfo m 1600. Vetto t. Lanterna m 1000!; Sondrio t. Mallero m 650! (App. Ligure): Pianostano t. Staffora m 750, Casanova t. Staffora m 600 (Ravizza, 1974).

Veneto Verona f. Adige (Consiglio, 1967); Pelos di Cadore t. m 850!

Trentino-Alto Adige - Madonna di Campiglio (Aubert 1959a); Collalbo m 1200, Renon m 900 (Consiglio, 1967). (Prealpi): Brentonico S. Giacomo t. Sorna m 1200!

Friuli-Venezia Giulia - (Alpi Carniche): Pontebba t. Pontebbana m 800!; Pontebba Passo Pramollo t. m 1200!; Forni di Sopra f. Tagliamento m 840!; Tolmezzo f. Tagliamento m 320! Dogna f. Fella m 400-500! (Alpi Giulie): Uccea t. Uccea (Nicolai, 1983c).

Liguria - (Alpi Liguri): Calizzano (Consiglio, 1967). (App. Ligure): Savona r. Porassino m 770!; Molare trib. t. Orba m 200!

Emilia-Romagna - Ferriere r. immiss. lago Moo m 1100-1225!; Ferriere t. Nure m 550, Farini d'Olmo t. Nure m 430, Bettola t. Nure m 300 (Ravizza & Ravizza Dematteis, 1979b); Bedonia-Cordolo sorg. t. Lecca m 1450-1500 (Ravizza & Ravizza Dematteis, 1978); Bosco di Corniglio t. Parma m 950; Le Ghiare di Corniglio t. Parma m 470-500 Langhirano t. Parma m 250 (Ravizza Dematteis & Ravizza, 1994). M. Falco Foresta di Campigna (Consiglio, 1971); La Stretta (Fochetti & Campadelli, 1988).

Toscana - Abetone Lago Baccioli m 1300, Livorno (Consiglio, 1967).

Marche - Valle di Bolognola m 1000 (Consiglio, 1967); Fiume Tenna (Fochetti & Nicolai, 1987a).

Umbria - Foligno-Rasiglia f. Menotre m 900!

Lazio - Collepardo t. Cosa (Nicolai & Fochetti, 1983a); Vallepietra F. Simbrivio m 800!

Abruzzo - Opi val Fondillo m 1050-1350, Opi valle Cacciagrande t. m 1100-1250, Villetta Barrea Camosciara m 1100-1250, Civitella Alfedena valle Jannanghera m 1200 (Consiglio, 1958a); Campitello (Aubert, 1953c, 1959a); F. Orfento m 600 (Fochetti, Nicolai & Dell'Agata, 1988); Parco Nazionale Camosciara!

Basilicata - Mezzana Frido t. Frido m 1500 (Aubert, 1959a); S. Severino Lucano!; M. Pollino (Aubert, 1953c, 1959a); Viggianello m 1500!

Calabria - (Catena Costiera): San Fili t. Emoli m 800 (Aubert, 1953c, 1959a). (Sila) Camigliatello t. Neto m 1200-1300 (Aubert, 1953c, 1959a). (Serre): Ferdinandea t. Stilaro (Nicolai & Fochetti 1991a). (Aspromonte): Sinopoli t. Vasi (Nicolai & Fochetti, 1991a).

Sicilia - (Altopiano centro meridionale): Nicosia t. Sperlinga m 550 (Ravizza & Gerecke, 1991). (Madonie): Collesano Rifugio Orestano (Consiglio, 1961). Piano Zucchi, r. (Fochetti & Nicolai, 1987). Petralia sott. f. Imera merid. m 1000 (Aubert, 1957a). (Nebrodi): Randazzo (CT): S. Andrea f. Martello (Fochetti & Nicolai, 1987). Alcara li Fusi t. Rosmarino (Fochetti & Nicolai, 1987). Cesarò M. Soro Portella Femmina Morta m 1430, M. Soro, Portella Femmina Morta m 1460 (Consiglio, 1961); M. Soro, Portella Femmina Morta m 1500 (Consiglio, 1968); M. Soro Portella Maulazzo (Fochetti & Nicolai, 1987); Serra del Re sorg. m 1660 (Ravizza & Gerecke, 1991); San Fratello f. S. Fratello (Fochetti & Nicolai, 1987).

Sottofamiglia **Taeniopteryginae** Klapalek

GENUS TYPICUM: *Taeniopteryx* Pictet, 1841.

DIAGNOSI: Specie di dimensioni medie, lunghezza del corpo mm 7-12 (♂ 7-10; ♀ 10-12). Tarsi di tre articoli all'incirca della stessa lunghezza. Il IX urosterno dei maschi, è grande, allungato e forma una placca concava verso l'alto, contenente il X segmento. Esso è munito nel terzo basale di una vescicola mediana. Il X urotergo comprende una porzione sclerificata anteromediana subtrapezoidale o sub triangolare dietro la quale vi è un'incavatura membranosa dalla quale sporge verso l'alto e leggermente in avanti l'epiprocto. Questo è costituito da un unico lobo prevalentemente membranoso. I cerci, privi di appendice basale, sono costituiti da un unico cercomero, grande, globoso, con le vestigia di un secondo cercomero. I paraprocti, la cui base è celata fra l'epiprocto ed il X urosterno, sono composti da due lobi simmetrici, uno laterale ed uno interno, e due stili pari sclerificati sporgenti all'indietro. Nelle femmine la placca subgenitale dell'VIII urosterno è vestigiale o del tutto assente; l'apertura genitale è situata al centro di una incavatura vulvare munita, nella sua porzione anteriore, di una piccola lamella mediana sclerificata di forma subtrapezoidale. Ai lati della incavatura vulvare vi sono i lobi vulvari (assenti soltanto in *T. nebulosa*). Il IX urosterno forma un'ampia placca postgenitale. Cerci pluriarticolati con 4 o 8-9 cercomeri.

Le ninfe sono caratterizzate dalla presenza di un'apofisi sporgente dorsalmente dal centro di ciascun urotergo, apofisi talvolta presenti anche sul margine anteriore e posteriore del protorace. Le ninfe possiedono inoltre tre paia di tracheobranchie coxali telescopiche e retrattili, che scompaiono completamente negli adulti lasciando al più delle cicatrici depigmentate sul lato interno delle coxe.

Come è stato posto in evidenza già da Aubert (1950) nella revisione delle specie europee del genere *Taeniopteryx*, il riconoscimento dei maschi è un'impresa delicata e

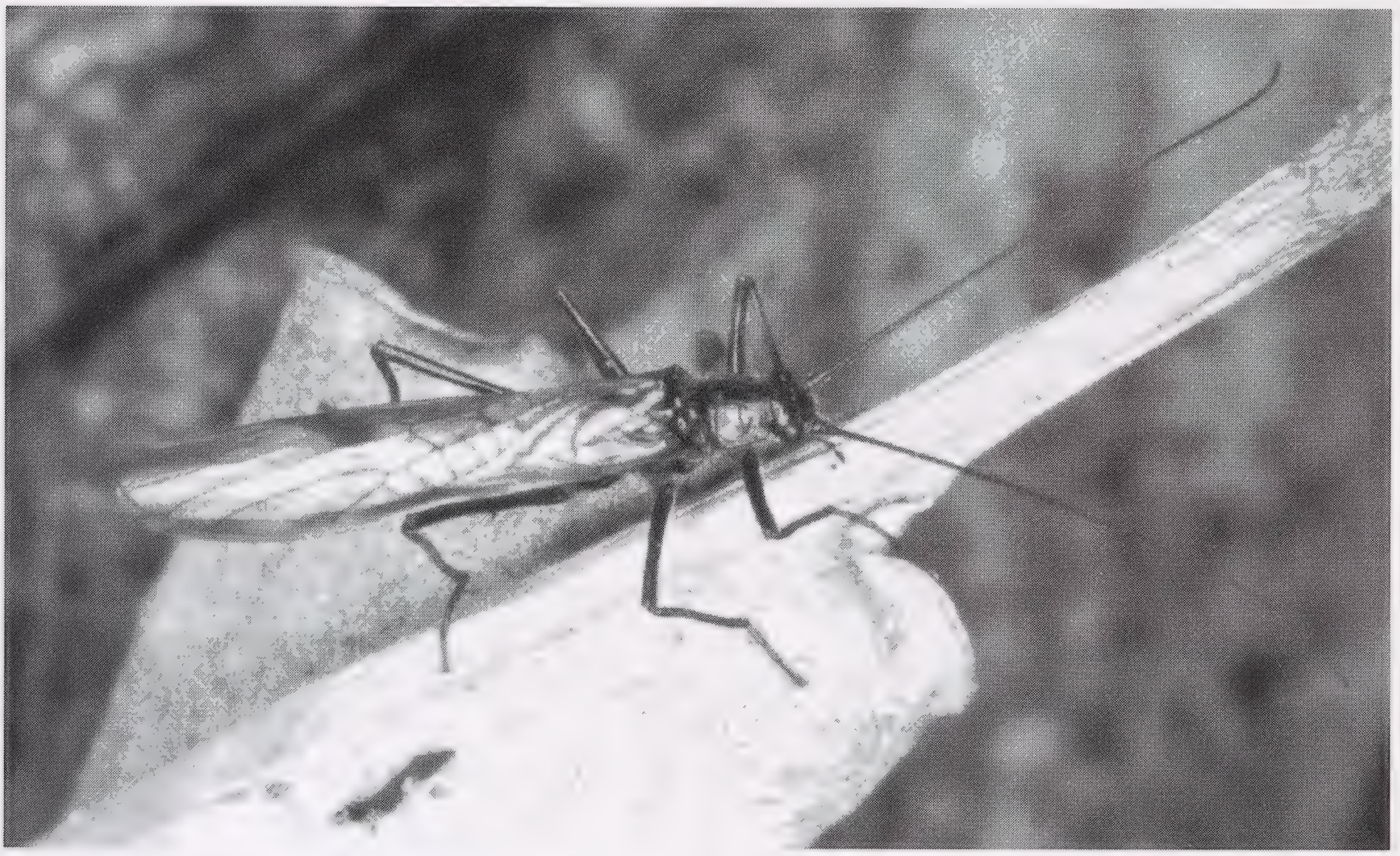


Fig. 9. *Taeniopteryx kuehtreiberi* ♂ Aubert.

a volte estremamente ardua, poiché le differenze morfologiche fra le specie sono esigue e spesso le strutture membranose dell'epiprocto sono difficili da studiare. Inoltre in molti esemplari il X urotergo si presenta completamente introflesso o estroflesso; in questi casi la determinazione specifica diviene ancor più problematica.

La sottofamiglia comprende il solo genere *Taeniopteryx*, olartico, che annovera 16 specie circa. I maschi presentano cerci di un solo cercomero, le femmine di più cercomeri. Le mute immaginali avvengono prevalentemente in inverno, da gennaio ad aprile, concentrandosi nel periodo del disgelo.

Gen. **Taeniopteryx** Klapalek, 1902

Nemoura (Taeniopteryx) Pictet, 1841: 343-347.

TYPUS GENERIS: *Phryganea nebulosa* Linneo = *Taeniopteryx nebulosa* (Linneo).

DIAGNOSI: Coincide con quella della sottofamiglia.

CHIAVE DELLE SPECIE ITALIANE DEL GENERE *TAENIOPTERYX*

Maschi

1 In visione dorsale i cerci si presentano arrotondati, più piccoli dell'apice membranoso dell'epiprocto (fig. 11/*g*). ..... *nebulosa*
- In visione dorsale i cerci si presentano ovali o ovoidali, più grandi dell'apice membranoso dell'epiprocto (fig.11/*a*; 12/*a*; 13/*a, f*)..... 2
2 Specie microttere. ..... *mercuryi*
- Specie macrottere. 3
3 Femori posteriori muniti di una spina più o meno sviluppata. 4
- Femori posteriori inermi. ..... *schoenemundi*

4 Spina femorale sempre presente, più o meno sviluppata (fig. 11/*d*). ..... *kuehtreiberi*
- Spina femorale più o meno pronunciata, talvolta assente (fig. 13/*i*). ..... *stankovitchi*

Femmine

1 Cerci lunghi composti di 8 o 9 cercomeri (fig. 11/*f, m*). 2
- Cerci corti composti di 4 articoli parzialmente saldati fra loro (fig. 12/*e*; 13/*e, l*). 3
2 Margine posteriore del IX urosterno sub rettilineo. Lobi vulvari presenti (fig. 11/*f*). *kuehtreiberi*
- Margine posteriore del IX urosterno arrotondato. Lobi vulvari assenti (fig. 11/*m*)..... *nebulosa*
3 Angolo interno del margine posteriore dei lobi vulvari acuto. 4
- Angolo interno del margine posteriore dei lobi vulvari retto (fig. 12/*e*). ..... *mercuryi*
4 Angolo interno del margine posteriore dei lobi vulvari di circa 45° (fig. 13/*e*). .... *schoenemundi*
- Angolo interno del margine posteriore dei lobi vulvari di circa 35° (fig. 13/*l*). ..... *stankovitchi*

Ninfe

1 Appendici spiniformi sclerificate degli urotergi sensibilmente allargate alla base simili alle spine delle rose (fig. 10/*d*)..... *kuehtreiberi*
- Appendici spiniformi sclerificate degli urotergi poco allargate alla base, digitiformi. 2
2 Appendici spiniformi sugli urotergi dal I al VII (fig. 10/*f*). ..... *nebulosa*
- Appendici spiniformi sugli urotergi dal I al IX (fig. 10/*c, e*). .....*mercuryi*
schoenemundi
stankovitchi

KEY TO THE ITALIAN SPECIES OF THE GENUS *TAENIOPTERYX*

Males

1 In dorsal view cerci appear rounded and smaller than the membranous epiproct tip (fig. 11/*g*). .....*nebulosa*
- In dorsal view cerci appear ovoid and bigger than the membranous epiproct tip (fig.11/*a*; 12/*a*; 13/*a, f*). 2
2 Short winged species. ..... *mercuryi*
- Full winged species. 3
3 Hind femora with a more or less developed thorn. 4
- Hind femora without any thorn. ..... *schoenemundi*
4 Femoral thorn always present (fig. 11/*d*). ..... *kuehtreiberi*
- Femoral thorn more or less evident, sometimes not present (fig. 13/*i*)..... *stankovitchi*

Females

1 Cerci longer, composed by 8 to 9 segments (fig. 11/*f, m*). 2
- Cerci shorter, composed by 4 segments almost completely fused between them (fig. 12/*e*; 13/*e, l*). 3
2 Hind margin of the IX sternite subrectilinear. Lobes of the vulva present (fig. 11/*f*). ..... *kuehtreiberi*
- Hind margin of the IX sternite rounded. Lobes of the vulva lacking (fig. 11/*m*)..... *nebulosa*
3 Inner angles of the lobes of the vulva hind margin in a form of an acute angle. 4
- Inner angles of the lobes of the vulva hind margin forming a right angle (fig. 12/*e*). .... *mercuryi*
4 Inner angles of the lobes of the vulva hind margin around 45° (fig. 13/*e*). ..... *schoenemundi*
- Inner angles of the lobes of the vulva hind margin around 35° (fig. 13/*l*). ..... *stankovitchi*

Nymphs

1 Abdominal terga with thorn like processes appreciably enlarged at their base, thorns of a rose shaped (fig. 10/*d*). ..... *kuehtreiberi*
- Abdominal terga with thorn like processes a little enlarged at their base, finger shaped 2

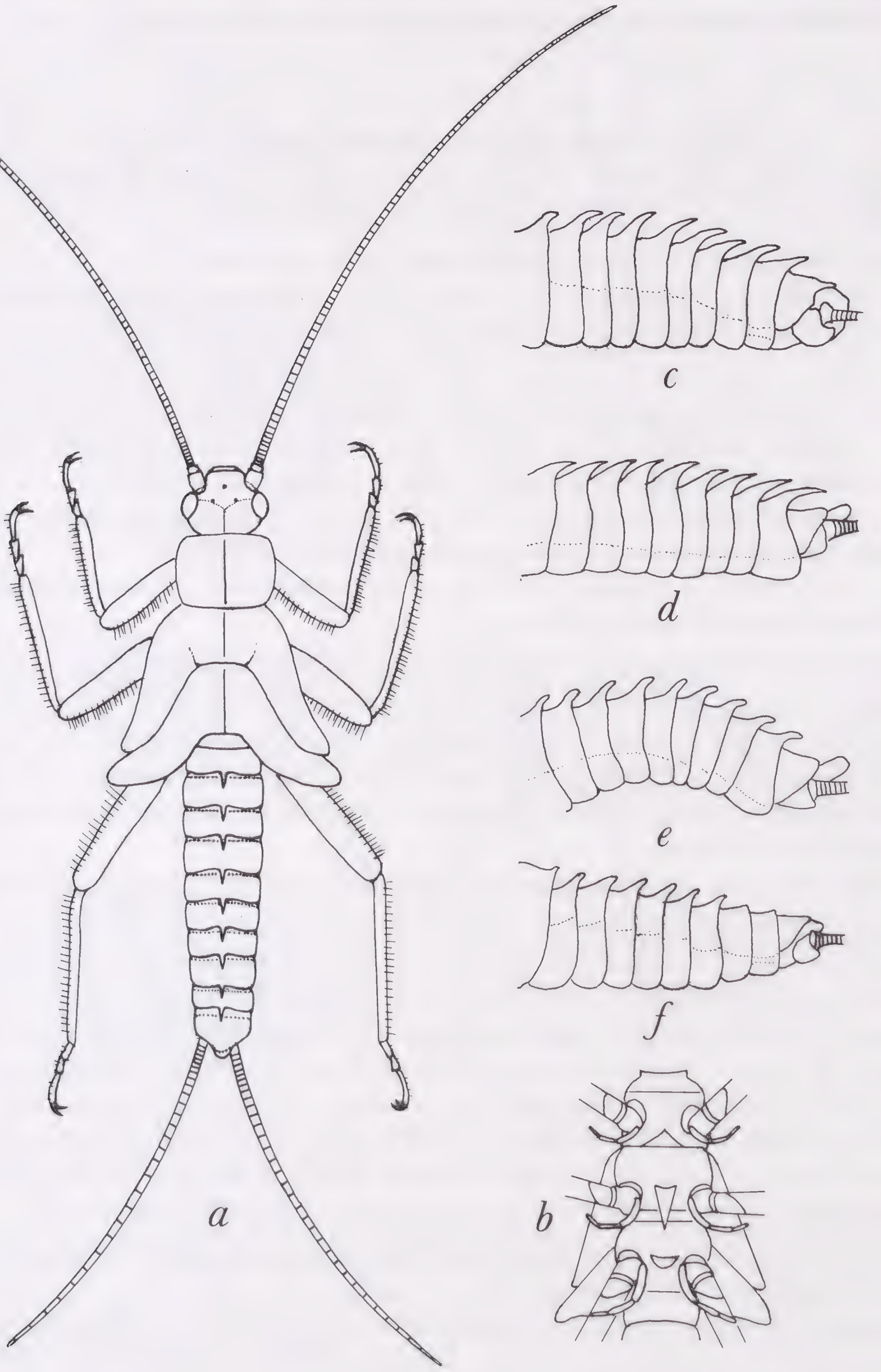


Fig. 10. Ninfe di Taeniopteryginae. *a*: Disegno schematico di un *Taeniopteryx*. *b*: Sterniti toracici con le tracheobranchie coxali. Addome in visione laterale: *c* di *T. mercuryi*; *d*: di *T. kühtreiberi*; *e:* di *T. schoenemundi*; *f:* di *T. nebulosa*. (*a* originale, *b* imitato da Hynes, 1977; *c* imitato da Fochetti & Nicolai, 1996; *d-e* imitati da Aubert, 1959; *f* imitato da Lillehammer).

2 Abdominal terga from the 1st to the 7th each with a thorn - like process (fig. 10/*f*)..... *nebulosa*
- Abdominal terga from the 1st to the 9th each with a thorn - like process (fig. 10/*c, e*)....*mercuryi*
schoenemundi
stankovitchi

Taeniopteryx kuehtreiberi Aubert, 1950

Taeniopteryx Kühtreiberi Aubert, 1950: 308, fig. 6, 10, 14, 18, 22-23, 28, 30; Illies 1955: 34-35, fig. 19; Aubert, 1959: 34-35, fig. 49, 54-56, 61; Kis, 1974: 68-71, fig. 28.

LOCUS TYPICUS: Svizzera, Grigioni, Val Mesolcina, Pian San Giacomo.

DESCRIZIONE: Lunghezza del corpo: ♂ 7,5-9,5 mm, ♀ 8-11 mm; lunghezza dell'ala anteriore ♂ 8,5-11,0 mm, ♀ 10-13 mm. Entrambi i sessi sono macrotteri, con ali grigiastre con fasce trasversali più scure (fig. 2/*d*). Pronoto con i margini anteriore e posteriore un poco prominenti (fig. 11/*e*). Maschi con una spina più o meno sviluppata sui femori posteriori (fig. 11/*d*).

Addome del maschio (fig. 11/*a-c*). Tergiti addominali I-II con bande biancastre sul bordo anteriore. La vescicola ventrale è corta e ristretta subapicalmente

Addome della femmina (fig. 11/*f*). Lobi vulvari il cui margine posteriore forma un angolo retto leggermente arrotondato. Cerci ovoidali di 8 o 9 articoli

Ninfa matura. Le apofisi dorsali sui segmenti addominali 1-9 sono allargate alla base, in forma di spina di rosa (fig. 10/*d*).

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie reofila insediata nei torrenti montani sia nei fondovalle che in quota. Nelle Alpi è stata segnalata fra 700 e 1.700 m; negli Appennini fra 1.000 e 1.500 m s.l.m. Occasionalmente può incontrarsi anche nei fiumi a bassa quota (Consiglio, 1963). Periodo di volo I-III. E' un tipico elemento a sfarfallamento invernale; nelle Alpi gli adulti si raccolgono quasi esclusivamente sulla neve in prossimità dei corsi d'acqua.

OSSERVAZIONI: E la specie maggiormente diffusa nelle Alpi dove peraltro appare rara a causa del suo precoce sfarfallamento nei mesi invernali quando i corsi d'acqua submontani e montani sono difficili da raggiungere a causa dell'innevamento. Si differenzia dalle altre specie italiane del genere *Taeniopteryx* per la peculiare ecologia dianzi descritta, essendo l'unica specie tipicamente reofila. Secondo i caratteri che sono stati presi in considerazione questa specie è stata avvicinata a *T. nebulosa* (Aubert, 1950) o a *T. fusca* Ikonomov, 1980 e *T. auberti* Kis & Sowa, 1964 (Ikonomov, 1980), specie queste ultime non segnalate in Italia. Le relazioni di parentela interne al genere sono però estremamente incerte (Fochetti & Nicolai, 1996). Tra le specie italiane la placca genitale della femmina ricorda quella di *T. mercuryi*, dalla quale si distingue però facilmente per avere i cerci composti di 8 segmenti invece che di 4.

DISTRIBUZIONE GEOGRAFICA: Specie mediosudeuropea, presente in Italia nella regione alpina e qua e là negli Appennini.

Piemonte - (Alpi Liguri): Certosa di Pesio Ardua t. Pesio m 1000! Certosa di Pesio Pian delle Gorre t. Pesio m 1100! (Alpi Marittime) Vinadio t. Stura m 900! (Alpi Cozie): Chiappi t. Grana m 1600, Pradleves t. Grana m 800-1000 (Ravizza & Ravizza Dematteis, 1986); Crissolo f. Po m 1380 (Ravizza Dematteis & Ravizza, 1988); Villanova t. Pellice m 1220! Malbec t. Pellice m 890! (Alpi Pennine): Balangera f. Sesia m 500! Mollia r. trib. f. Sesia m 900!

Svizzera, Ticino - (Alpi Lepontine): Airolo f. Ticino, Pian Segno t. Brenno m 1750 (Aubert et al., 1996).

Svizzera, Grigioni - (Alpi Lepontine): Val Mesolcina pian S. Giacomo t. Moesa m 1170 (Aubert et

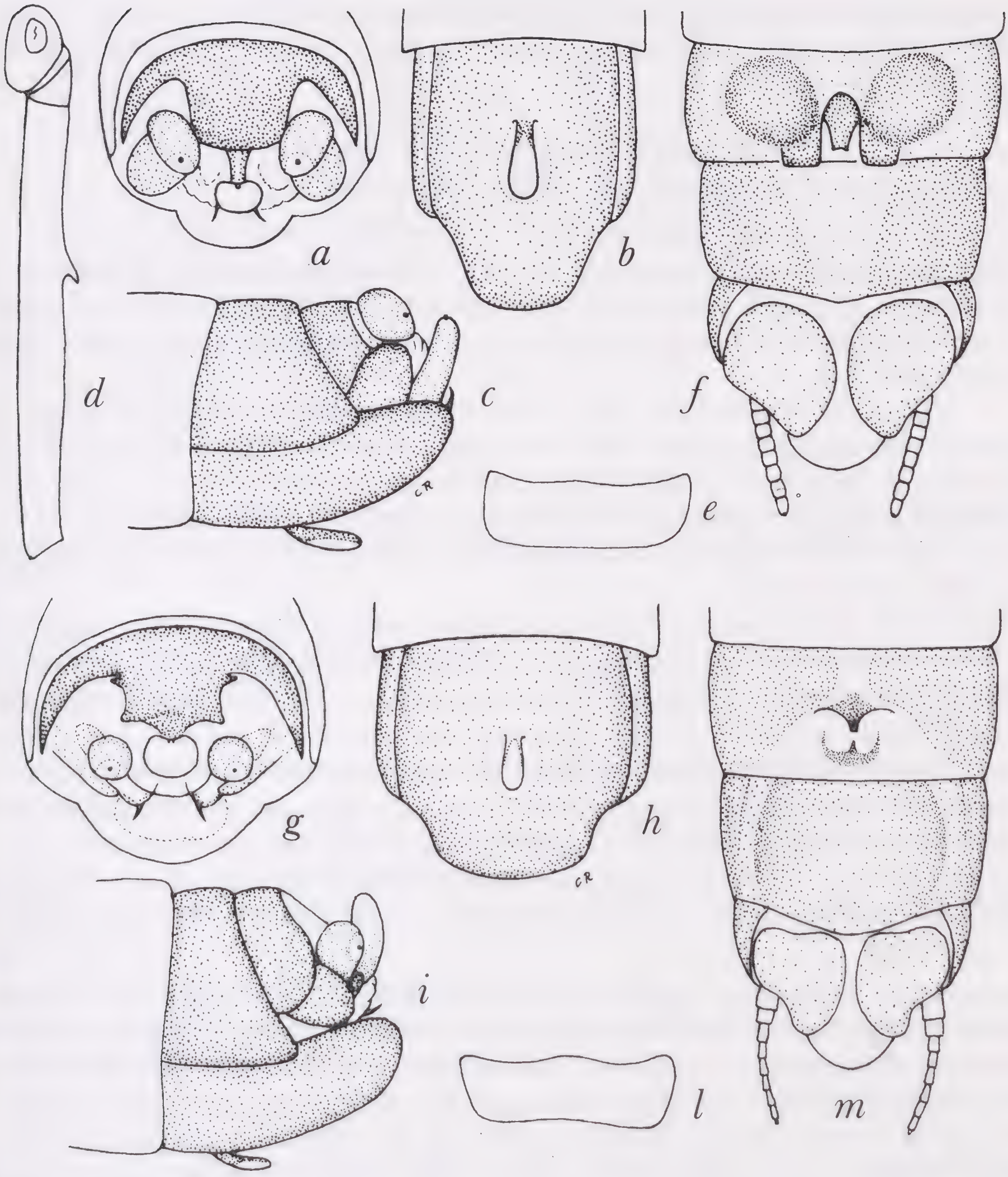


Fig. 11. *Taeniopteryx kühtreiberi* Aubert. Estremità dell'addome del ♂ visto dorsalmente (*a*), ventralmente (*b*) e di lato (*c*); femore posteriore del ♂ (*d*); profilo del pronoto del ♂ (*e*); estremità dell'addome della ♀ in visione ventrale (*f*). *Taeniopteryx nebulosa* (Linneo). Estremità dell'addome del ♂ visto dorsalmente (*g*), ventralmente (*h*) e di lato (*i*); profilo del pronoto del ♂ (*l*); estremità dell'addome della ♀ in visione ventrale (*m*).

al., 1996).

Lombardia - Bagolino val Caffaro!

Veneto - Verona f. Adige (Consiglio, 1963).

Friuli-Venezia Giulia - Malghe di Montasio m 1400!

Marche - Montefortino Gole dell'Infernaccio, Fiume Tenna m 1000 (Fochetti & Nicolai, 1987a).

Abruzzo - Pietracamela, Opi, Villetta Barrea (Consiglio, 1963); fra S. Pellino e Marana (Consiglio, 1967).

Taeniopteryx mercuryi Fochetti & Nicolai, 1996

Taeniopteryx mercuryi: Fochetti & Nicolai, 1996: 22-30, fig. 6, 10, 14, 18.

LOCUS TYPICUS: Italia, Abruzzo, Paganica sorgente Fiume Vera (affl. Fiume Aterno) m 650.

DESCRIZIONE: Lunghezza del corpo: ♂ 8-9 mm, ♀ 11-12 mm; lunghezza dell'ala anteriore ♂ 12-13 mm, ♀ 12-13 mm. Capo e torace bruni, antenne più lunghe del corpo, zampe lunghe. Pronoto non a rilievo nel maschio, a margini esterni subrettilinei, leggermente a rilievo nelle femmine (fig. 12/*d*).

Addome del maschio (fig. 12/*a-c*). Placca ventrale del IX urosterno più lunga che larga con due leggere incavature trasversali presso il margine distale. Lamella ventrale spatoliforme, lunga circa 1/3 della lunghezza della placca del IX urosterno. L'epiprocto è cilindrico, in visione dorsale appare più sottile dei cerci, ed è munito di una costa sclerificata medio dorsale appuntita all'apice. Cerci ovoidali, all'incirca delle medesime dimensioni dei paraprocti.

Addome della femmina (fig. 12/*e*). Lobi vulvari terminanti ad angolo retto, leggermente smussati. Lobulo mediano subtriangolare, con i margini leggermente concavi. IX urosterno depigmentato al centro, con il margine posteriore subrettilineo. Cerci di 4 articoli chiaramente separati fra loro.

Ninfa munita di 9 apofisi addominali digitiformi, una su ciascun urotergo (fig. 10/*c*).

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Noto finora di due sorgenti reocreniche adiacenti site a 650 m sul versante meridionale del massiccio del Gran Sasso. Periodo di volo molto esteso nell'arco dell'anno: X-VII. Esemplari adulti sono stati raccolti sia sulla neve in febbraio con temperature dell'aria di 1 °C, che in luglio con temperature dell'aria di 30 °C (Fochetti & Nicolai, 1996).

OSSERVAZIONI: Il maschio di questa specie somiglia a quelli di *T. stankovitchi* e di *T. schoenemundi* (per queste specie esiste però il sospetto che si tratti di sinonimi, v. oltre); le dimensioni ridotte ed il marcato microtterismo lo differenziano però facilmente. Delle affinità della femmina è stato già detto a proposito di *T. kuehtreiberi*. *T. mercuryi* è stata studiata anche da un punto di vista biochimico e risulta essere più vicina a *T. stankovitchi* che non a *T. kuehtreiberi* (Fochetti e Nicolai, 1996). Questo confermerebbe in parte le somiglianze morfologiche ma anche la simile valenza ecologica.

DISTRIBUZIONE GEOGRAFICA: **Abruzzo** - pendici del Gran Sasso. Nota finora unicamente della località tipica.

Taeniopteryx nebulosa (Linneo, 1758)

Phryganea nebulosa Linneo, 1758: 549.
Nemoura (Taeniopteryx) nebulosa Pictet, 1841: 347-350.
Nephelopteryx nebulosa Klapálek, 1902: 179-180; Kühtreiber, 1934: 57-58, fig. 39.
Taeniopteryx nebulosa Albarda, 1889: 59-61; Despax, 1951: 41, 43-44; Aubert, 1950: 305-307, 309-310, fig. 7, 11, 15, 19-21; Illies, 1955: 34-36, fig. 20; Kis, 1974: 68-70, fig. 27.

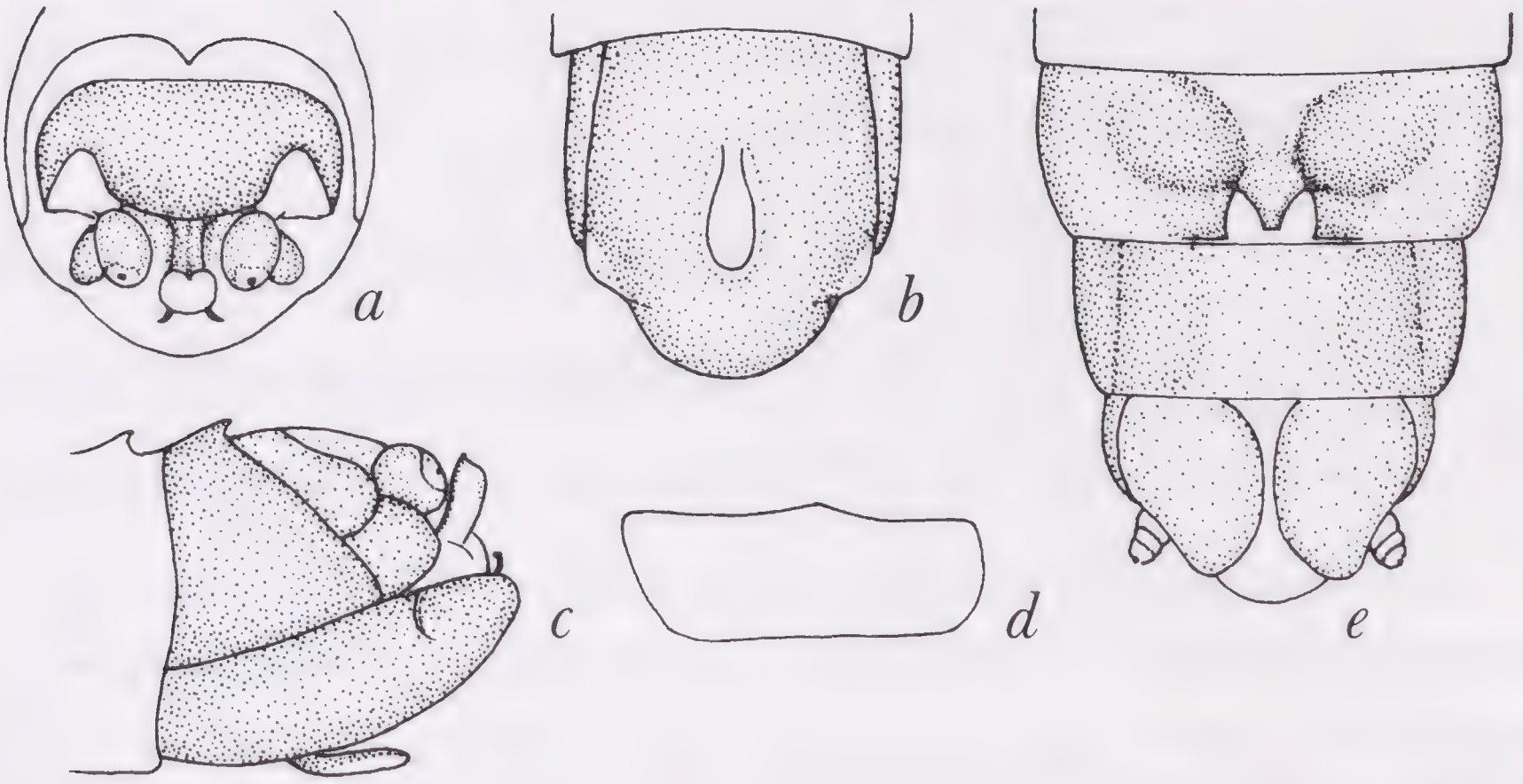


Fig. 12. *Taeniopteryx mercuryi* Fochetti & Nicolai. Estremità dell'addome del ♂ visto dorsalmente (*a*), ventralmente (*b*) e di lato (*c*); profilo del pronoto del ♂ (*d*); estremità dell'addome della ♀ in visione ventrale (*e*).

LOCUS TYPICUS: Svezia (ristretta da Illies, 1966).

DESCRIZIONE: Lunghezza del corpo: ♂ 9-12 mm, ♀ 10-14 mm; lunghezza dell'ala anteriore ♂ 10,0-13,5 mm, ♀ 12,5-15,0 mm. Ali normalmente sviluppate in entrambi i sessi; in Francia ed in Scozia sono stati segnalati maschi microtteri. Maschio senza spina nei femori posteriori.

Addome del maschio. (fig. 11/*g-i*) Urotergi I e II con una macchia depigmentata. Lamella ventrale corta, ristretta subapicalmente.

Addome della femmina. (fig. 11/*m*) Cerci di 8 o 9 articoli. Lobi vulvari della placca genitale assenti.

Ninfa con sette apofisi dorsali digitiformi (fig. 10/*f*).

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie fluviale, talvolta raccolta anche in quota, accertata fra 30 e 1.100 m s.l.m.

OSSERVAZIONI: Specie minacciata di estinzione in gran parte dell'Europa. Probabilmente estinta nel nostro paese a causa del grave inquinamento dei corsi d'acqua di pianura. In totale risultano essere stati raccolti solamente 5 individui e gli ultimi rinvenimenti risalgono ormai a circa quaranta anni or sono. Oltre un secolo fa la situazione era ben diversa, come testimonia Albarda (1889) che scriveva "Espèce commune en Italie, en Autriche, en Suisse, en Tyrol, en Allemagne, en France, en Belgique, dans les Pays-Bas et dans les îles Britanniques".

DISTRIBUZIONE GEOGRAFICA: Medioeuropea-sibirica. Sono note in Italia soltanto 5 femmine.

Trentino-Alto Adige - ("In tutta la fauna. In grandissima quantità" Ausserer, 1869).

Emilia-Romagna - Forlì m 30; Campigna, r. m 1100 (Fochetti & Nicolai, 1996).

Taeniopteryx schoenemundi Mertens, 1923

Taeniopteryx schoenemundi Mertens 1923: 15 fig. 1-3; Illies 1955: 34, 37, fig. 22; Aubert, 1950: 305-307, 311-312, fig. 4, 8, 12, 16, 24-25; 1959: 34-35, fig. 51, 54, 57-58; Kis, 1974: 68-69, 74-75, fig. 31.

LOCUS TYPICUS: Germania, Westfalia, Bigge e Ahr.

DESCRIZIONE: Lunghezza del corpo: ♂ 7-9 mm, ♀ 9,0-11,5 mm; lunghezza dell'ala anteriore ♂ 8-10 mm, ♀ 11-13 mm. Macrotteri. Maschi con il margine anteriore del pronoto leggermente rilevato; femori posteriori privi di spina.

Addome del maschio (fig. 13/*a-c*), Aree depigmentate sugli urotergi dal I al V. Vescicola ventrale lunga e sottile.

Addome della femmina. (fig. 13/*e*) Cerci corti di 3 o 4 articoli parzialmente fusi fra loro.

Ninfa con 9 apofisi dorsali digitiformi (fig. 10/*e*).

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Specie di bassa quota, raramente in altitudine.

OSSERVAZIONI: Come la specie precedente anche questa è gravemente minacciata di estinzione in tutto il territorio italiano. Nel nostro paese risultano segnalati solo due individui (1 ♂, 1 ♀) per le rive dell'Adige a Verona (Consiglio, 1966) ed un maschio raccolto sulle montagne della Sila nel 1963 (Fochetti & Nicolai, 1996); da allora essa non è stata più rinvenuta. Anche considerando la proposta sinonimia con *T. stankovitchi* (v. oltre), presente nel nostro paese con residue popolazioni, la situazione non risulta migliore. E' inoltre minacciata di estinzione in Germania (Zwick, 1984) e probabilmente in gran parte del suo areale di distribuzione.

DISTRIBUZIONE GEOGRAFICA: Specie medioeuropea.

Veneto - Verona f. Adige (Consiglio, 1966).

Calabria - Sila (Fochetti & Nicolai, 1996).

Taeniopteryx stankovitchi Ikonomov, 1978

Taeniopteryx stankovitchi Ikonomov, 1978: 83-87, tav. I-II; Nicolai & Fochetti, 1983b: 60-61, fig. 3.

LOCUS TYPICUS: Macedonia, Radoucha, fiume Vardar m 300.

DESCRIZIONE: Lunghezza del corpo: ♂ 8-9 mm, ♀ 12,0-12,5 mm; lunghezza dell'ala anteriore ♂ 11,0-11,5 mm, ♀ 13-14 mm.

Addome del maschio. (fig. 13/*f-h*) Aree depigmentate sugli urotergi dal I al V. Vescicola ventrale lunga e sottile.

Addome della femmina. (fig. 13/*l*) Cerci corti di 3 o 4 articoli parzialmente fusi fra loro.

Ninfa con 9 apofisi dorsali digitiformi.

NOTIZIE ECOLOGICHE ED ETOLOGICHE: Elemento reofilo in Macedonia dove la specie s'insedia in torrenti e ruscelli a quote comprese fra 250 e 1800 m s.l.m. In Italia è un elemento fluviale di bassa quota segnalato fra 50 e 305 m s.l.m. Periodo di volo I-IV.

OSSERVAZIONI: Anche il riconoscimento di questa specie non è agevole per le già ricordate difficoltà insite nella sistematica del genere *Taeniopteryx*. Come evidenziato da Nicolai & Fochetti (1983) "*T. stankovitchi* è molto simile a *T. schoenemundi* dalla quale in pratica si distingue nel maschio per la presenza della spina femorale, mentre la femmina è estremamente somigliante". Tenendo inoltre presente che nelle popolazioni italiane del bacino del Mignone esiste una forte variabilità della spina femorale del maschio (fig.

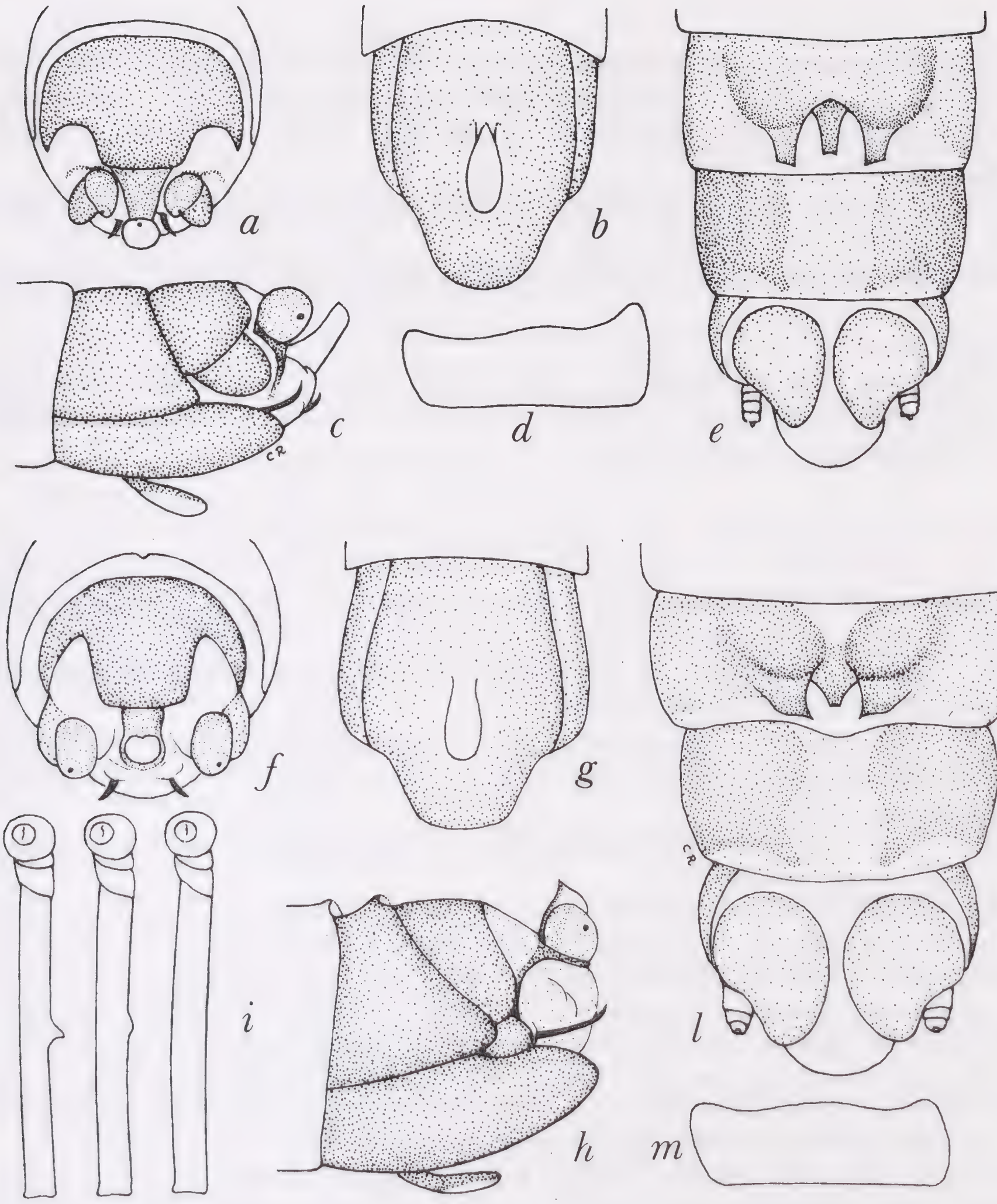


Fig. 13. *Taeniopteryx schoenemundi* Mertens. Estremità dell'addome del ♂ visto dorsalmente (*a*), ventralmente (*b*) e di lato (*c*); profilo del pronoto del ♂ (*d*); estremità dell'addome della ♀ in visione ventrale (*e*). *Taeniopteryx stankovitchi* Ikonomov. Estremità dell'addome del ♂ visto dorsalmente (*f*), ventralmente (*g*) e di lato (*h*); variabilità della spina del femore posteriore del ♂ (*i*); profilo del pronoto del ♂ (*m*); estremità dell'addome della ♀ in visione ventrale (*l*).

13/*i*), spina che arriva ad essere del tutto assente in alcuni esemplari, esiste il fondato sospetto che le suddette popolazioni laziali siano da ascrivere a *T. schoenemundi* ma, più in generale, che *stankovitchi* possa essere sinonimo di *schoenemundi*. Purtroppo, come sottolineato da Fochetti & Nicolai (1996), "Allo stato delle cose il problema non appare risolvibile, stante l'impossibilità di reperire ulteriore materiale italiano riferibile a *T. schoenemundi*".

DISTRIBUZIONE GEOGRAFICA: Macedonia e Lazio. È l'unico Plecottero fino ad oggi noto a distribuzione transadriatica. In Italia ci è noto soltanto di poche località, tutte di bassa quota nel versante tirrenico della penisola.
Toscana - Aulla T. Bardine m 190.
Lazio - (Antiappennino laziale) Veiano f. Mignone m 50-305. F. Olpeta confl. F. Fiora (Fochetti e Nicolai, 1996). Blera, T. Castellaccio m 250!
Calabria - Galatro F. Metramo m 150. Silvana Mansio F. Garga m 700 (Fochetti e Nicolai, 1996).

RINGRAZIAMENTI

Siamo molto grati ai colleghi che ci hanno fornito materiale di confronto e bibliografico facilitandoci nel nostro lavoro. In particolare ringraziamo cordialmente J. Aubert†, C. Consiglio, M. Pavesi, P. Nicolai, G. Vinçon e P. Zwick.

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Mem. Soc. entomol. ital., 77: 161-212 *31 marzo 1999*

Roberto PACE

Aleocharinae della Namibia raccolte dalla spedizione entomologica "Namibia 1992" del Museo di Storia Naturale di Berlino*
(Coleoptera Staphylinidae)

Riassunto - Vengono qui studiate le Aleocharinae della Namibia raccolte dalla spedizione entomologica "Namibia 1992" del Museo di Storia Naturale di Berlino. Sono elencate 57 specie, appartenenti a 11 tribù; 41 specie sono descritte come nuove. È descritto il nuovo genere *Notelyglypha* della tribù Deremini. Ogni nuova specie è illustrata e comparata con quelle affini. Cinque specie sono trasferite al genere *Diplopleurus* Bernhauer. In base allo studio del genere *Stylopalpus* Cameron, sistematicamente intermedio tra i due generi *Myllaena* e *Pronomaea*, la tribù Myllaenini è posta in sinonimia della tribù Pronomaeini. Il genere *Afropronomaea* Klimaszewski & Jansen, 1994, è posto in sinonimia del genere *Tomoxelia* Bernhauer, 1901.
Le specie descritte sono le seguenti:
Nopromaea uhligi **n. sp.**, *Brachida narokensis* **n. sp.**, *Diestota namibiensis* **n. sp.**, *Cordalia namibicola* **n. sp.**, *Amanota namibiensis* **n. sp.**, *A. miricornis* **n. sp.**, *A. uhligi* **n. sp.**, *Gnypeta uhligi* **n. sp.**, *G. namibiensis* **n. sp.**, *Longiprimitarsus roeri* **n. sp.**, *Notelyglypha uhligi* **n. gen. n. sp.**, *Medera namibicola* **n. sp.**, *Hydrosmecta namibiana* **n. sp.**, *Geopora namibiensis* **n. sp.**, *Atheta (Traumoecia) undosa* **n. sp.**, *A. (T.) namibiensis* **n. sp.**, *A. (Acrotona) caprivensis* **n. sp.**, *A. (Oxypodera) dobensis* **n. sp.**, *Pachorhopala namibiensis* **n. sp.**, *Diplopleurus namibiorum* **n. sp.**, *D. ulittera* **n. sp.**, *D. varius* **n. sp.**, *D. mimus* **n. sp.**, *D. notabilis* **n. sp.**, *Zyras* (*Grammodonia*) *serruliger* **n. sp.**, *Z.* (*Parophthalmonia*) *rusticus* **n. sp.**, *Z.* (*Camonia*) *laxus* **n. sp.**, *Z.* (*C.*) *silus* **n. sp.**, *Z.* (*C.*) *uhligi* **n. sp.**, *Z.* (*C.*) *namibiensis* **n. sp.**, *Z.* (*C.*) *ambiguus* **n. sp.**, *Z.* (*C.*) *sericatus* **n. sp.**, *Z.* (*C.*) *bipunctatus* **n. sp.**, *Z.* (*C.*) *invictus* **n. sp.**, *Z.* (*C.*) *modestus* **n. sp.**, *Z.* (*Androdonia*) *kavangensis* **n. sp.**, *Z.* (*A.*) *caprivensis* **n. sp.**, *Z.* (*Ctenodonia*) *uncifer* **n. sp.**, *Porus discalis* **n. sp.**, *Apimela uhligi* **n. sp.**, *Tinotus namibiensis* **n. sp.**
Vengono inoltre proposte le seguenti nuove sinonimie e nuove combinazioni:
Brachida bartolozzii Pace, 1991 = *Brachida africana* (Bernhauer & Scheerpeltz, 1926) **n. syn.**
Astilbus ruwenzorensis Bernhauer, 1934 = *Diplopleurus ruwenzorensis* (Bernhauer, 1934) **n. comb.**
Drusilla rorida Pace, 1986 = *Diplopleurus roridus* (Pace, 1986) **n. comb.**
Drusilla notatipennis Pace, 1986 = *Diplopleurus notatipennis* (Pace, 1986) **n. comb.**
Drusilla puella Pace, 1986 = *Diplopleurus puella* (Pace, 1986) **n. comb.**
Zyras (*Trachydonia*) *gilvicollis* Pace, 1985 = *Diplopleurus gilvicollis* (Pace, 1985) **n. comb.**

Abstract - *Aleocharinae from Namibia collected by the Entomological Expedition "Namibia 1992" of the Natural History Museum of Berlin (Coleoptera Staphylinidae).*
In this work Aleocharinae from Namibia collected by the Entomological Expedition "Namibia 1992" of the Natural History Museum of Berlin are studied. 57 species are listed, 41 of which are described as new, belonging to 11 tribes. The new genus *Notelyglypha* of the tribe Deremini is described and illustrated. Five species are transferred into the genus *Diplopleurus* Bernhauer. The major diagnostic caracters of the new species are illustrated. According to the study of the genus *Stylopalpus* Cameron, that is intermediate betwen the two genera *Myllaena* and *Pronomaea*, the tribe Myllaenini is newly placed in synonymy with the tribe Pronomaeini. The genus *Afropronomaea* Klimaszewski & Jansen,

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* 136° Contributo alla conoscenza delle Aleocharinae

1994 is placed as junior synonym of *Tomoxelia* Bernhauer, 1901.
The following new species are described:
Nopromaea uhligi **n. sp.**, *Brachida narokensis* **n. sp.**, *Diestota namibiensis* **n. sp.**, *Cordalia namibicola* **n. sp.**, *Amanota namibiensis* **n. sp.**, *A. miricornis* **n. sp.**, *A. uhligi* **n. sp.**, *Gnypeta uhligi* **n. sp.**, *G. namibiensis* **n. sp.**, *Longiprimitarsus roeri* **n. sp.**, *Notelyglypha uhligi* **n. gen. n. sp.**, *Medera namibicola* **n. sp.**, *Hydrosmecta namibiana* **n. sp.**, *Geopora namibiensis* **n. sp.**, *Atheta (Traumoecia) undosa* **n. sp.**, *A. (T.) namibiensis* **n. sp.**, *A. (Acrotona) caprivensis* **n. sp.**, *A. (Oxypodera) dobensis* **n. sp.**, *Pachorhopala namibiensis* **n. sp.**, *Diplopleurus namibiorum* **n. sp.**, *D. ulittera* **n. sp.**, *D. varius* **n. sp.**, *D. mimus* **n. sp.**, *D. notabilis* **n. sp.**, *Zyras* (*Grammodonia*) *serruliger* **n. sp.**, *Z.* (*Parophthalmonia*) *rusticus* **n. sp.**, *Z.* (*Camonia*) *laxus* **n. sp.**, *Z.* (*C.*) *silus* **n. sp.**, *Z.* (*C.*) *uhligi* **n. sp.**, *Z.* (*C.*) *namibiensis* **n. sp.**, *Z.* (*C.*) *ambiguus* **n. sp.**, *Z.* (*C.*) *sericatus* **n. sp.**, *Z.* (*C.*) *bipunctatus* **n. sp.**, *Z.* (*C.*) *invictus* **n. sp.**, *Z.* (*C.*) *modestus* **n. sp.**, *Z.* (*Androdonia*) *kavangensis* **n. sp.**, *Z.* (*A.*) *caprivensis* **n. sp.**, *Z.* (*Ctenodonia*) *uncifer* **n. sp.**, *Porus discalis* **n. sp.**, *Apimela uhligi* **n. sp.**, *Tinotus namibiensis* **n. sp.**
The following new synonymies and new combinations are proposed:
Brachida bartolozzii Pace, 1991 = *Brachida africana* (Bernhauer & Scheerpeltz, 1926) **n. syn.**
Astilbus ruwenzorensis Bernhauer, 1934 = *Diplopleurus ruwenzorensis* (Bernhauer, 1934) **n. comb.**
Drusilla rorida Pace, 1986 = *Diplopleurus roridus* (Pace, 1986) **n. comb.**
Drusilla notatipennis Pace, 1986 = *Diplopleurus notatipennis* (Pace, 1986) **n. comb.**
Drusilla puella Pace, 1986 = *Diplopleurus puella* (Pace, 1986) **n. comb.**
Zyras (*Trachydonia*) *gilvicollis* Pace, 1985 = *Diplopleurus gilvicollis* (Pace, 1985) **n. comb.**

Key words: Coleoptera, Staphylinidae, Aleocharinae, Namibia, Taxonomy, New Species, New Genus, Synonymyes.

Il dr Manfred Uhlig del Museo di Storia Naturale di Berlino, mi ha affidato in studio le Aleocharinae raccolte nel corso della missione entomologica "Namibia 1992" del Museo di Storia Naturale di Berlino, da egli organizzata e diretta, effettuata con il contributo finanziario dell'Università Humboldt di Berlino e in collaborazione con il personale del Museo di Stato di Windhoek (Namibia), che utilizzò un contributo finanziario del Ministero della Protezione della Natura e del Turismo della Namibia.

L'itinerario di 5.000 Km è stato percorso dalla missione nel febbraio-marzo del 1992. Partendo dalla capitale Windhoek, la spedizione, dopo aver toccato Otavi, Grootfontein, Tsumke e Kavango, è giunta nella zona del Caprivi Strip (Dito di Caprivi), un corridoio territoriale del nordest della Namibia, stretto tra Angola, Zambia e Botswana. Da qui proviene la maggior parte delle Aleocharinae raccolte. Infatti qui si trovano le più importanti zone umide e fluviali della Namibia (fiumi Cuito, Kwando e Zambesi). Questa zona, restata finora inesplorata sotto questo punto di vista, presenta una componente faunistica delle Aleocharinae affine a quella della Tanzania e stati vicini, che conosco a sufficienza per aver esaminato i tipi di moltissime specie. Non per nulla il territorio del "Dito di Caprivi" fa parte della sottoregione africana orientale e non della sottoregione africana australe a cui appartiere la Repubblica Sudafricana; di quest'ultima Scheerpeltz ha pubblicato nel 1974 numerose specie inedite di Aleocharinae, ma esse sono quasi totalmente estranee alla sottoregione africana orientale.

Nell'elenco che segue nel senso nuovo proposto in questo articolo non sono presenti specie delle tribù Myllaenini e Adinopsini, essendo state affidate dal dr Uhlig al collega Klimaszewski, studioso di queste due tribù. All'elenco delle specie raccolte durante la spedizione "Namibia 1992", ho aggiunto alcuni esemplari datimi in esame dal dr. H. Roer del Museo di Storia Naturale di Bonn.

Gli olotipi e dei paratipi delle nuove specie si conservano nelle collezioni del

Museo di Storia Naturale di Berlino (MBE); un solo holotypus (*Longiprimitarsus roeri* n. sp.) si conserva nelle collezioni del Museo di Storia Naturale di Bonn (MBO), altri paratipi sono conservati nel Museo regionale di Scienze Naturali di Torino (MT).

Tribù Pronomaeini

Stylopalpus rufus Cameron, 1932 (figg. 1-7)

Stylopalpus rufus Cameron, 1932: 145

1 ♂ e 3 ♀♀, Namibia, East Caprivi: Katima Mulilo, 7.III.1992, Gesiebe♀ Geschwemme, Tümpelufer, (Uhlig leg., MBE, MT).

Specie finora nota solo dello Zaire.

DISCUSSIONE:

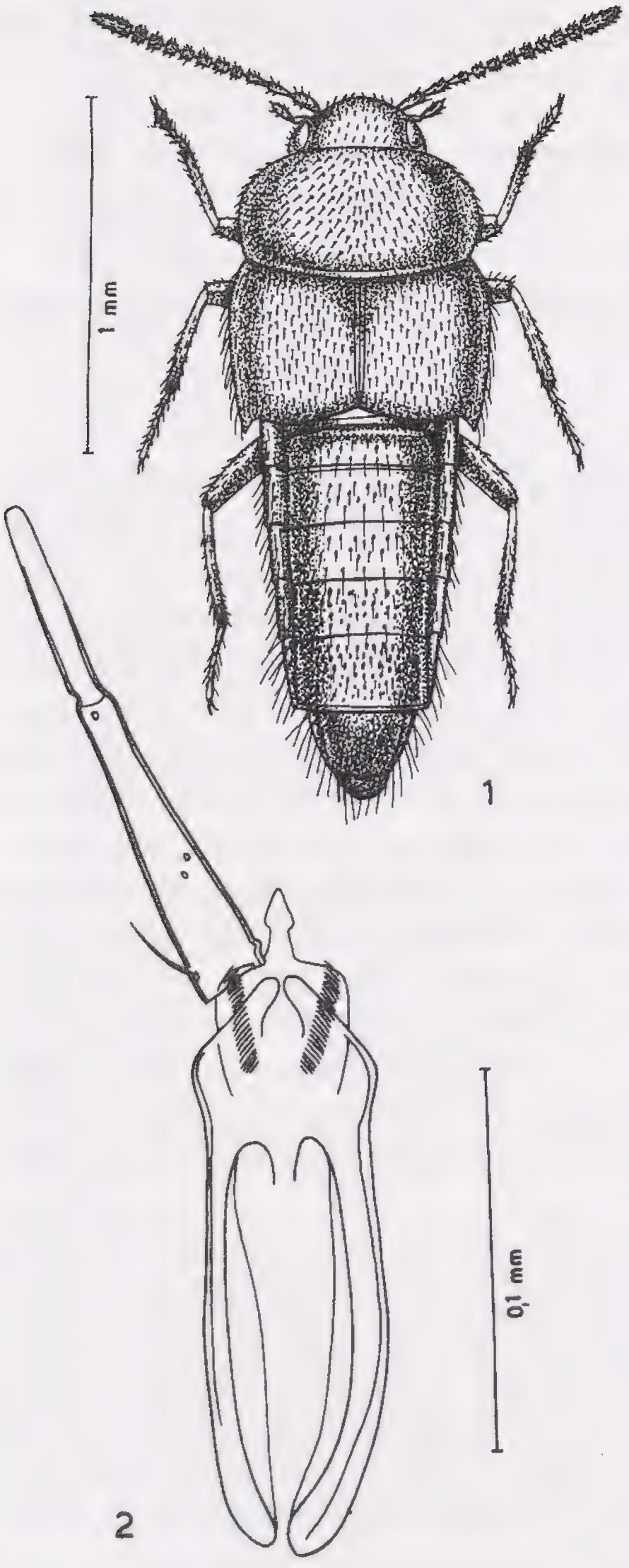
Il genere *Stylopalpus* Cameron, 1932, è stato da Cameron stesso attribuito alla tribù Myrmedoniini. Per la forma delle parti boccali è preferibile l'attribuzione alla tribù Pronomaeini oppure alla tribù Myllaenini. Infatti è genere che si pone in posizione tassonomica intermedia tra i generi *Myllaena* (tribù Myllaenini) e *Pronomaea* (tribù Pronomaeini). Della tribù Myllaenini il genere *Stylopalpus* condivide la forma allungata dei palpi labiali e mascellari e delle maxille e la forma del mento che ha angoli anteriori proiettati in avanti come lunghe appendici (fig. 4) e la forma fusiforme del corpo. Tuttavia la formula tarsale 4-5-5 (e non 4-4-5) e la spermateca di tipo estraneo alla tribù Myllaenini, permettono di attribuire il genere *Stylopalpus* anche alla tribù Pronomaeini, che comprende specie a formula tarsale 4-5-5, mesocoxe sepaxate o non separate tra loro, palpi labiali molto lunghi e una spermateca con bulbo distale terminante con una caratteristica appendice ricurva che si ritrova in alcune specie del genere *Nopromaea* Cameron, 1930 (fig. 11). I caratteri del mento e la forma del corpo del genere *Stylopalpus* tuttavia sono del tutto estranei alla tribù Pronomaeini. Il genere *Stylopalpus* pertanto, come sopra è stato affermato, in base ai caratteri descritti si colloca sistematicamente in posizione intermedia tra il genere *Myllaena* Erichson, 1837 della tribù Myllaenini e i generi *Pronomaea* Erichson, 1857 e *Nopromaea* Cameron, 1950, della tribù Pronomaeini.

Un altro genere, *Pseudomniophila* Pace, 1985, della regione neotropicale, mostra caratteri intermedi e comuni alle due tribù Myllaenini e Pronomaeini, per cui l'attribuzione alla tribù Myllaenini risultò forzata al momento della descrizione di questo genere.

Allo scopo di porre fine a difficoltà insormontabili nell'attribuzione tribale di alcuni generi a caratteri intermedi, come *Stylopalpus*, *Pseudomniophila* ed altri, ritengo opportuno porre la tribù Myllaenini Ganglbauer, 1895, in sinonimia della tribù Pronomaeini Mulsant & Rey, 1873. La tribù Pronomaeini ha priorità poiché nominata per la prima volta nel 1873 (Myllaenini **syn. n.**).

Alla tribù Pronomaeini (sensu n.) (= Myllaenini syn. n.) vengono ascritti pertanto i seguenti generi: *Pronomaea* Erichson, 1839; *Mataris* Fauvel, 1886; *Nopromaea* Cameron, 1930; *Tomoxelia* Bernhauer, 1901 (= *Afropronomaea* Klimaszewski & Jansen, 1994, syn. n.); *Masuria* Cameron, 1928 *Amazonopora* Pace, (1996 a); *Stylopalpus* Cameron, 1932; *Pseudomniophila* Pace, 1985 (nec *Pseudomniophilia* (sic!): Klimaszewski & Ashe, 1992); *Philomina* Blackwelder, 1952 (*Mniophila* Cameron, 1939, nec *Mniophila* Stephens, 1831); *Myllaena* Erichson, 1859.

Tutti i generi inclusi ora nella tribù Pronomaeini (sensu n.) hanno in comune: ligula



Figg. 1-3. *Stylopalpus rufus* Cameron: Habitus, labio con palpo labiale e maxilla con palpo mascellare.

intera, palpi labiali lunghissimi composti di tre, due o, talora, un solo articolo, prodotto questo dalla fusione di due o tre articoli, maxille molto strette e lunghe, formula tarsale 4-4-5 oppure 4-5-5.

I caratteri generici descritti e illustrati per il genere *Afropronomaea* da Klimaszewski & Jansen (1994), sono identici a quelli del genere *Tomoxelia* Bernhauer, 1901, genere del Madagascar, presente anche nel resto dell'Africa centrale, (Pace, 1994). Anche la spermateca di *Afropronomaea* ha le stesse caratteristiche morfologiche che si osservano nel genere *Tomoxelia*.

Nopromaea uhligi n. sp. (figg. 8-11)

TIPI: Holotypus ♂, Namibia, Kavango: Mahango Game Reserve, Seeufer, (Uhlig leg., MBE). Paratypi: 2 ♀♀, stessa provenienza; 1 ♀, Namibia, Buffalo Camp, Kavango-Ufervegetation gesibt, 28.II.1992, (Uhlig leg.); 1 ♀, Namibia, East Caprivi: Katima Mulilo, 7.III.1992, Gesiebe/Geschemme Tümpelufer, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 2,8 mm. Corpo lucido e bruno-rossiccio con capo e uriti liberi 3° e 4° bruni; antenne brune con i due antennomeri basali giallo-rossicci; zampe rossicce. Sul corpo non vi è traccia di microreticolazione. La punteggiatura del capo è svanita e quella del pronoto è distinta. La elitre sono coperte di tubercoletti distinti. Il 4° urotergo libero mostra punteggiatura più forte alla base che sul resto dell'urotergo stesso, dove la punteggiatura è fine come quella del 5° urotergo libero. Edeago figg. 9-10, spermateca fig. 11.

COMPARAZIONI: La nuova specie, per la fine punteggiatura del corpo, è più simile a *N. africana* (Eppelsheim, 1895) (tipi esaminati), del Togo, che a *N. fortepunctata* (Eichelbaum, 1913) (tipi esaminati), dell'Africa Orientale, che presenta robustissima punteggiatura.

L'edeago di *N. africana* è simile a quello della nuova specie, ma più esile e con un lungo flagello del sacco interno: esso sporge dall'orifizio apicale. Nell'edeago della nuova specie, questo flagello è assente. La spermateca della nuova specie è molto più sviluppata di quella di *africana* che, inoltre, ha il bulbo distale privo di appendice ricurva.

ETIMOLOGIA: La nuova specie è dedicata al dr. Manfred Uhlig del Museo di Storia Naturale di Berlino.

Tribù Gyrophaenini

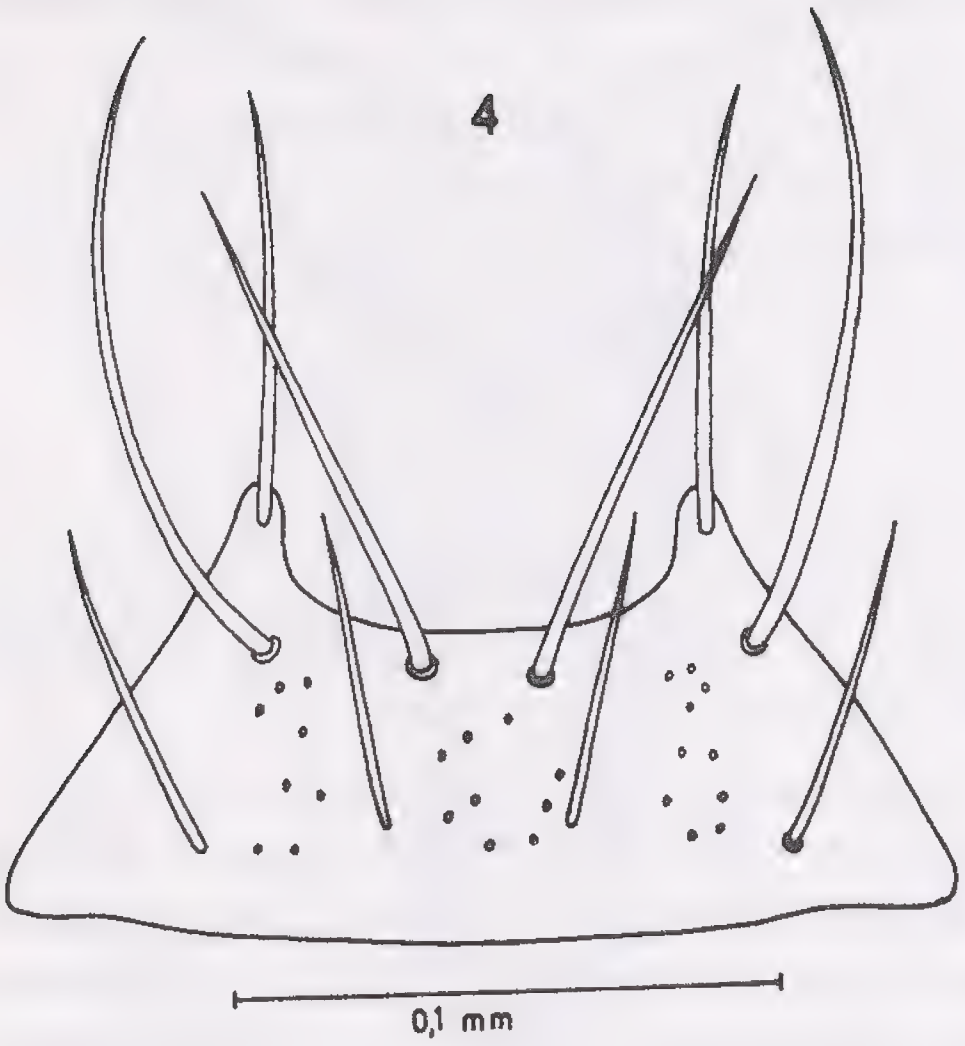
Brachida africana (Bernhauer & Scheerpeltz, 1926)

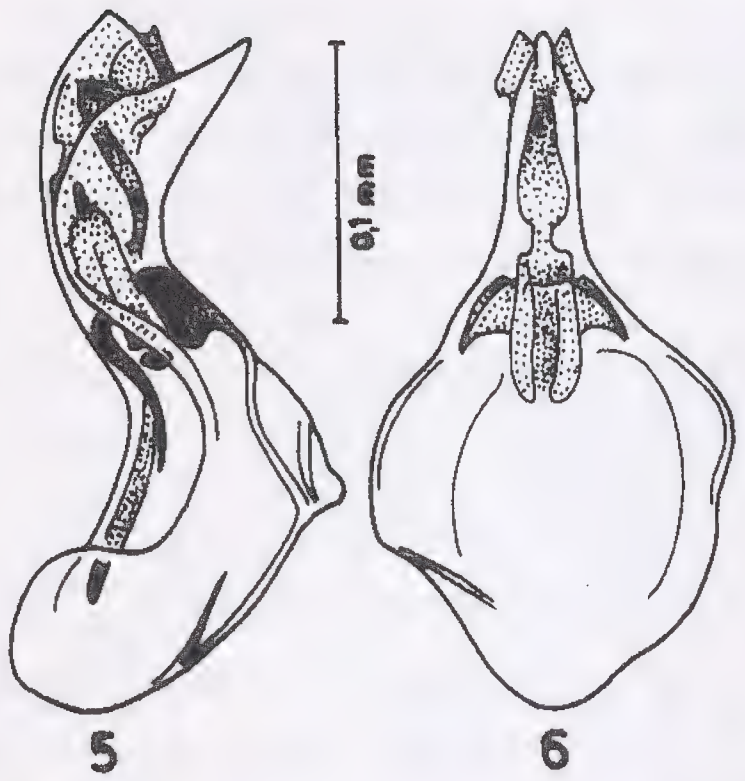
Gyrophaena africana Bernhauer & Scheerpeltz, 1926: 529
Brachida africana: Pace, 1986: 85
Brachida bartolozzii Pace, 1991: 308 (**syn. n.**)

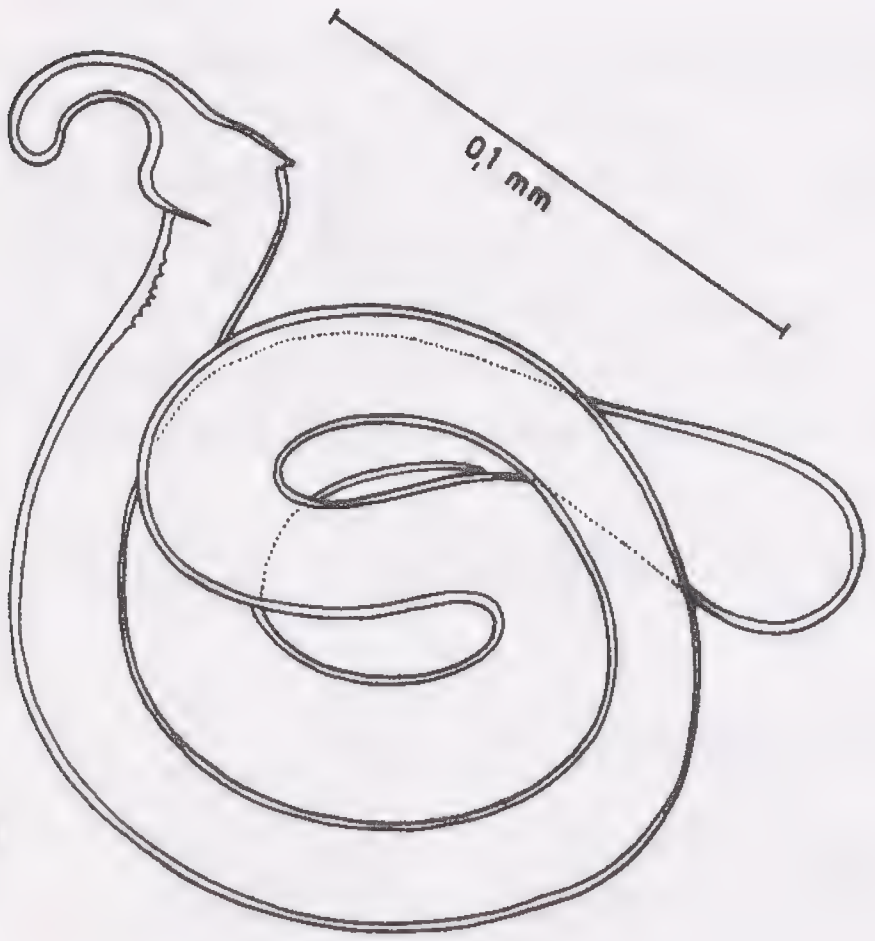
1 ♂ e 1 ♀, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg.) (MBE, MT).
Specie finora nota dell'Africa Orientale.

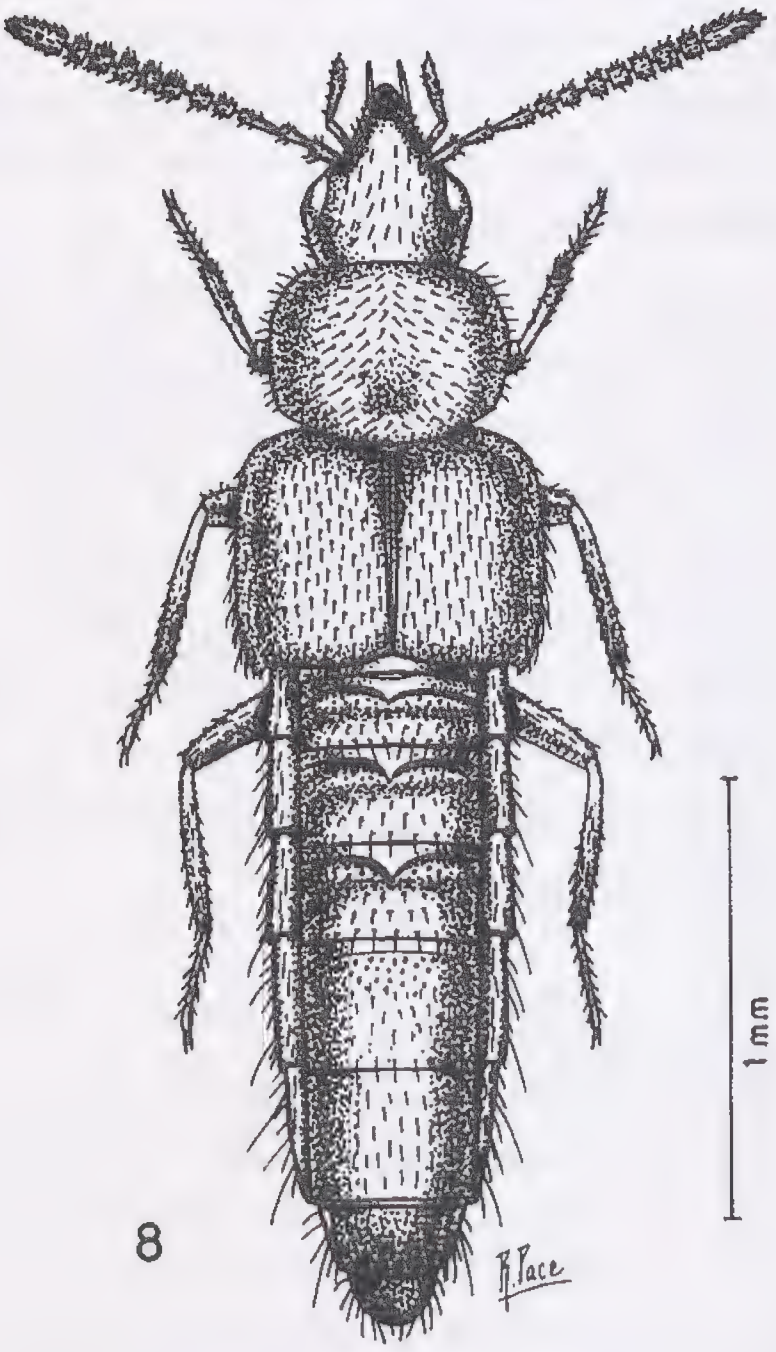
NOTA TASSONOMICA CON DESCRIZIONE DI ***Brachida narokensis*** n. sp.

La spermateca di *Brachida africana* (Bernhauer & Scheerpeltz) da me pubblicata e illustrata (Pace, 1994) appartiene a una nuova specie. La spermateca di *africana* è quella









Figg. 4-8. Mento, edeago in visione laterale e ventrale, spermateca e habitus. 4-7: *Stylopalpus rufus* Cameron; 8: *Nopromaea uhligi* n. sp.

illustrata per *B. bartolozzii* Pace, 1991, che ora è nuovo sinonimo juniore di *B. africana*. La nuova specie *Brachida narokensis* è nota sul solo holotypus ♀ conservato nel Museo di Storia Naturale di Ginevra ed è così etichettato: "Kenya, Narok, 5.X.1977, Loita Hills sous Morijo, 2050 m, (Mahnert & Perret leg.), *Brachida africana* Bernh. & Sch.".

Tribù Diestotini

Diestota namibiensis n. sp. (figg. 12-16)

TIPI: Holotypus ♂, Namibia, Grootfontein: Askavolt-Farm, 20 Km E Otavi, 18.II.1992, (Uhlig leg., MBE). Paratypi: 3 ♂♂ e 6 ♀♀, stessa provenienza (MBE, MT).

DESCRIZIONE: Lungh. 1,8 mm. Corpo lucido e bruno con pronoto e uriti liberi 1°, 2° e 6° giallo-rossicci; antenne brune con i due antennomeri basali e la base del terzo gialli; zampe giallo-rossicce. La reticolazione del capo è distinta, quella del pronoto e delle elitre è netta e quella dell'addome è svanita. La punteggiatura del capo è netta, quella del pronoto è quasi indistinta e quella delle elitre è distinta. Edeago figg. 13-14, spermateca fig. 15, sesto urotergo libero del maschio fig. 14.

COMPARAZIONI: Specie affine a *D. africana* Pace, 1986, dell'Africa Orientale in base alla morfologia dell'edeago. Se ne distingue per i caratteri dati nella seguente chiave:

1 - Occhi più corti delle tempie; penultimi antennomeri poco trasversi; reticolazione delle elitre distinta; 6° urotergo libero del maschio con 4 denti triangolari a base larga; bulbo basale dell'edeago molto più sviluppato; sacco interno dell'edeago con un bastoncino chitinoso. Lungh. 1,9 mm. Africa Orientale ..... *africana* Pace

\- Occhi più lunghi delle tempie; penultimi antennomeri molto trasversi; reticolazione delle elitre netta; 6° urotergo libero del maschio con 6 denti lineari a base stretta; bulbo basale dell'edeago meno sviluppato; sacco interno dell'edeago con due valve accostate tra loro. Lungh. 1,8 mm. Namibia ..... *namibiensis* n. sp.

Tribù Homalotini

Placusa somala Pace, 1994

Placusa somala Pace, 1994: 152

4 ♂♂ e 5 ♀♀, Namibia, Bushmanland: Klein Dobe, Fruchtköder, 20-21.II.1992, (Uhlig leg.) (MBE, MT).

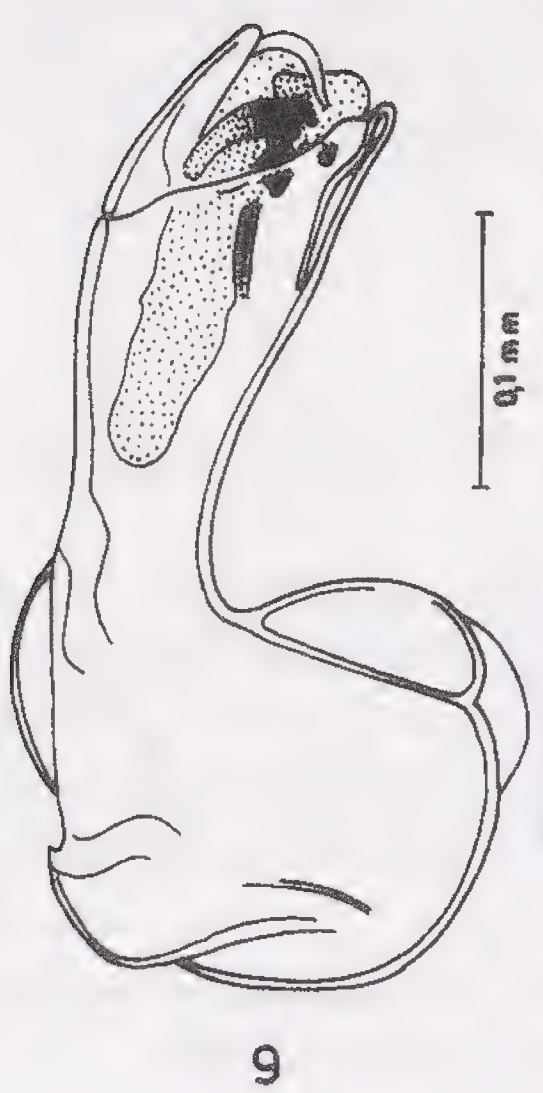
Specie finora nota solo della Somalia.

Tribù Falagriini

Cordalia namibicola n. sp. (figg. 17-20)

TIPI: Holotypus ♂, Namibia, E Caprivi: Katima Mulilo, lux, (Uhlig leg., MBE). Paratypi: 6 es., stessa provenienza.

DESCRIZIONE: Lungh. 2,5 mm. Corpo lucido e rossiccio; antenne brune con antennomeri 1, 2, 10 e 11 rossicci; zampe giallo-rossicce. Su tutto il corpo non vi è traccia di microreticolazione. La punteggiatura dell'avancorpo è fine e poco distinta, quella dell'addome,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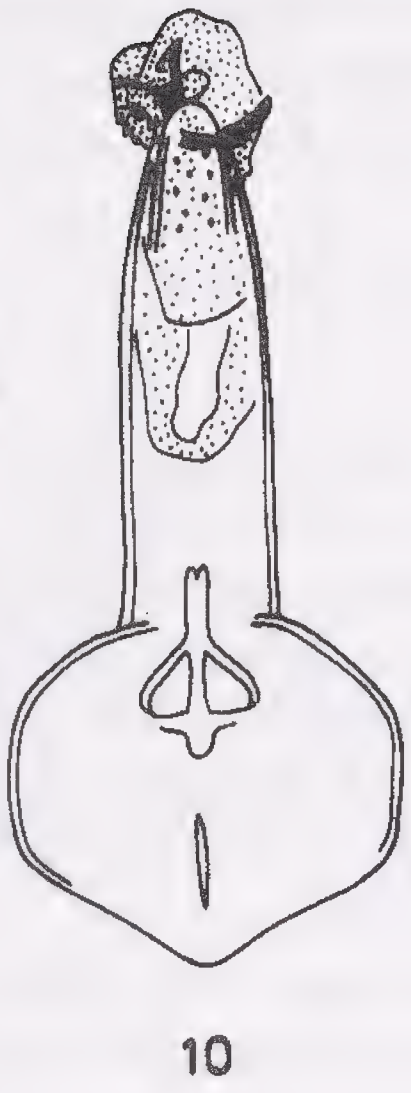

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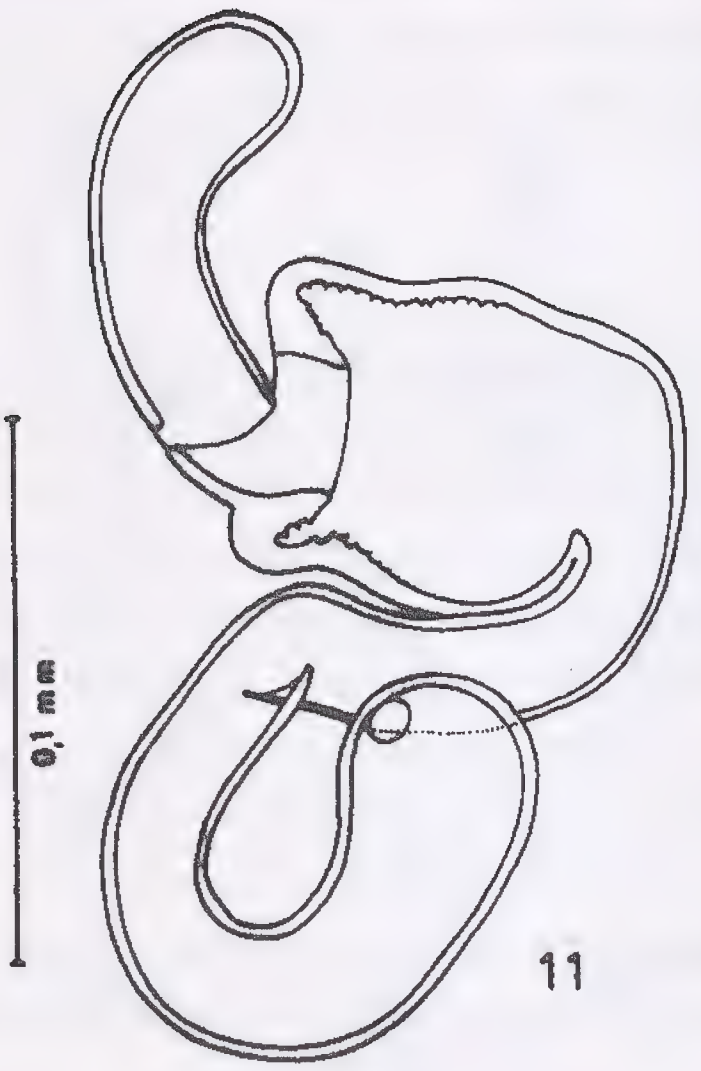

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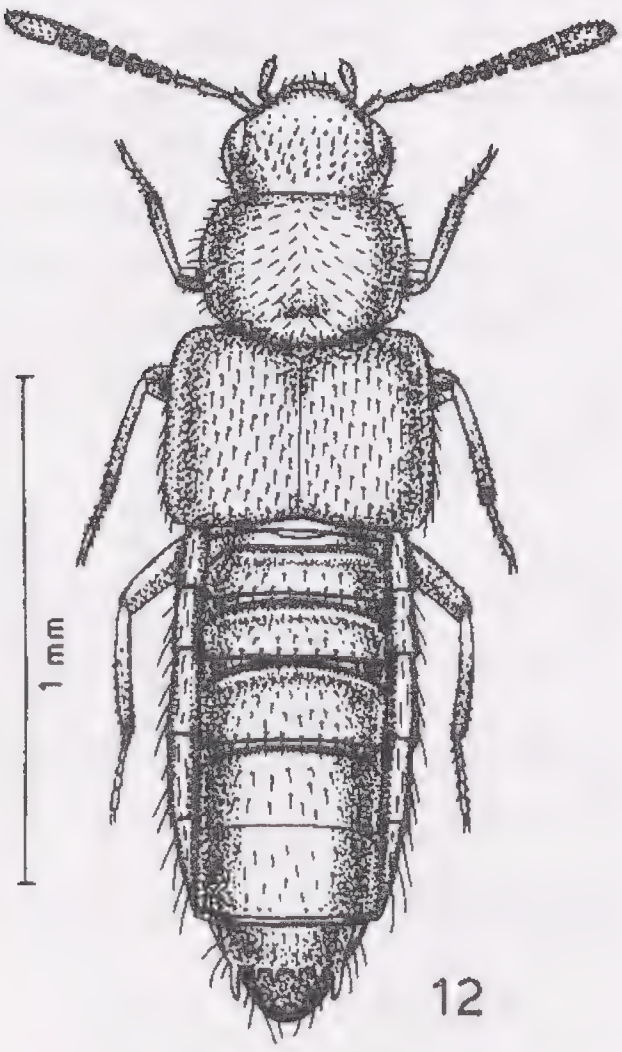

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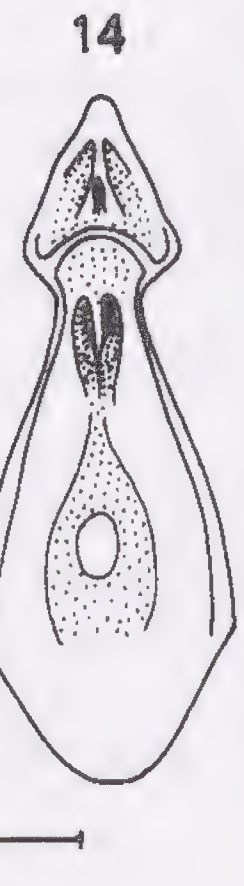

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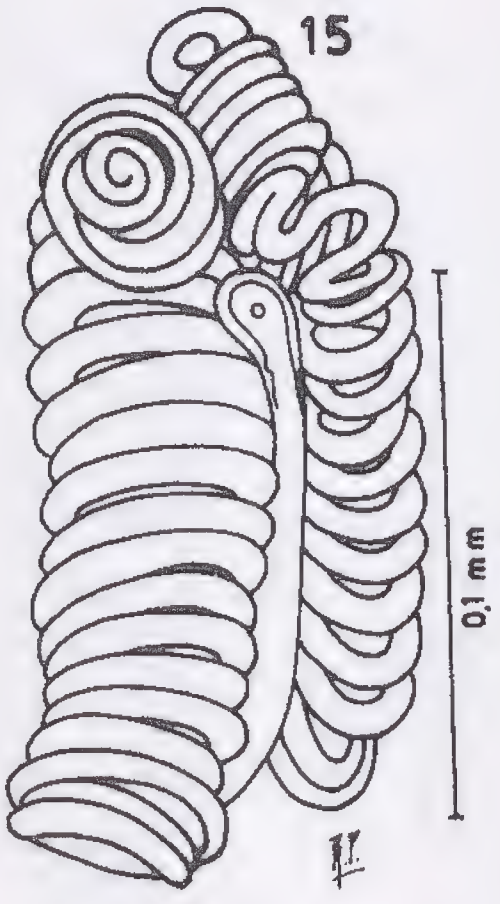

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Figg. 9-15. Edeago in visione laterale e ventrale, spermateca e habitus. 9-11: *Nopromaea uhligi* n. sp.; 12-15: *Diestota namibiensis* n. sp.

al di fuori della fila di punti grossolani alla base dei quattro uroterghi liberi, è distinta. Il disco del capo del maschio è largamente concavo. Il pronoto presenta un netto solco mediano. Edeago figg. 18-19, spermateca fig. 20

COMPARAZIONI: In base alla forma dell'edeago e per alcuni caratteri esterni, la nuova specie si mostra sistematicamente affine a *C. csikii* (Bernhauer, 1915), (tipi esaminati). Se ne distingue per i caratteri dati nella seguente chiave:

1 - Antennomero 4 lungo quanto largo; pronoto appena trasverso; 5° urotergo libero del maschio inciso a metà dell'orlo posteriore; edeago di un terzo più piccolo rispetto all'edeago di *C. namibicola*, appena ricurvo all'apice verso il lato ventrale; in visione ventrale, parte apicale dell'edeago stretta e a lati subparalleli; bulbo distale della spermateca stretto, con introflessione apicale ellittica. Lungh. 2,7 mm. Kenya e Tanzania .....*csikii* (Bernhauer)

- Antennomero 4 più lungo che largo; pronoto chiaramente trasverso; 5° urotergo libero del maschio a margine posteriore semplice; edeago di un terzo più grande rispetto all'edeago di *C. csikii*, nettamente ricurvo all'apice, verso il lato ventrale; in visione ventrale, parte apicale dell'edeago larga e triangolare; bulbo distale della spermateca, largo con introflessione apicale triangolare. Lungh. 2,5 mm. Namibia ..... *namibicola* n. sp.

Falagria (*Falagria*) *kaszabi* Pace, 1986

Falagria (*Falagria*) *kaszabi* Pace, 1986: 93

4 es., Namibia, Kavango, Buffalo Camp, Kavango-Ufervegetation gesiebt, 28.II.1992, (Uhlig leg.); 4 es., Namibia, Kavango: popa Falls, Kavango-Afer, Schiff-Papyrus-Ufer-Vegetation, gesiebt, 13.III.1992, (Uhlig leg.); 1 es., Namibia, E Caprivi: Mudumu NP., Nakatwa, Kwando-Ufer *Phragmites* schlammig, 8-13.III.1992, (Uhlig leg.); 1 es., Namibia, Kavango: Galukkie Kavango-Ufer, 1.III.1992, (Uhlig leg.) (MBE, MT).

Specie finora nota solo della Tanzania.

Falagria (*Myrmecocephalus*) *bipunctata* Tottenham, 1957

Falagria (*Falagrioma*) *bipunctata* Tottenham, 1957: 104

11 es., Namibia, Kavango: Popa Falls, Kavango-Ufer, Ufervegetation gesiebt, 27.II.1992, (Uhlig leg.); 4 es., Namibia, E. Caprivi: Mudumo NP.: Nakatwa, Kwando-Ufer *Phragmites*, schlamming, 8-13.III.1992, (Uhlig leg.).

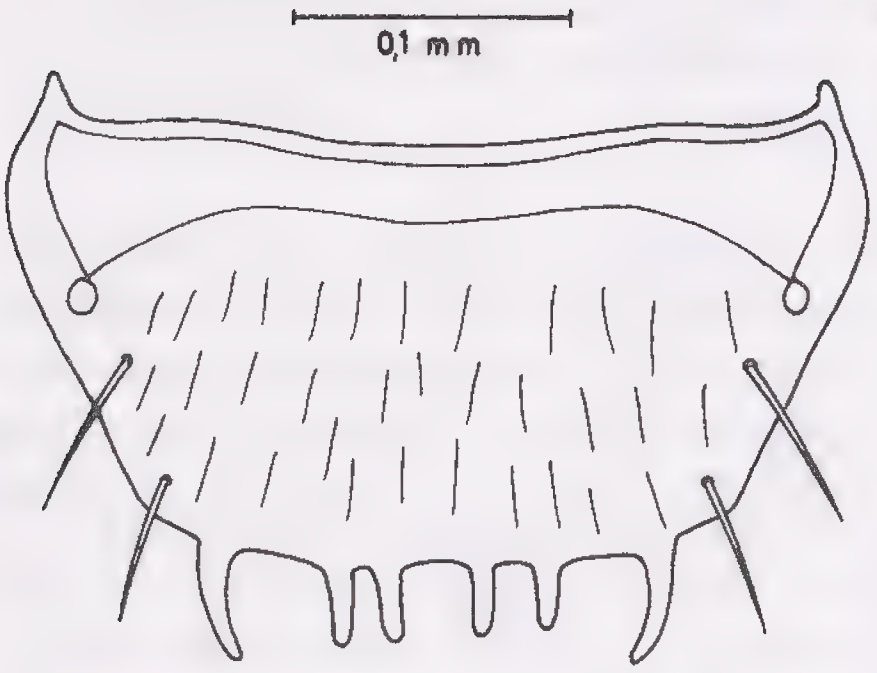
Specie finora nota solo del Kenya.

Tribù Tachyusini

Amanota namibiensis n. sp. (figg. 21-24)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg., MBE). Paratypi: 1 ♀, stessa provenienza; 1 ♂ e 1 ♀, stessa provenienza, ma Geslebs/Geschwemrne, Tümpelufer, 7.III.1992; 1 ♂, Namibia, E. Caprivi: Mudumuna NP., Nakatwa Kwando-Ufer Phragmites schlammlg., 8-13.III.1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 2,7 mm. Corpo lucido e nero con elitre nero-brune; antenne nere con i due antennomeri basali bruni; zampe brune con tarsi e metà basale dei femori, bruno-rossicci. Su tutta la superficie del corpo non vi è presenza di microreticolazione. La punteggiatura del capo è quasi indistinta, quella delle elitre è estremamente fine e poco distinta. Il pronoto presenta la superficie coperta di tubercoletti molto salienti, più



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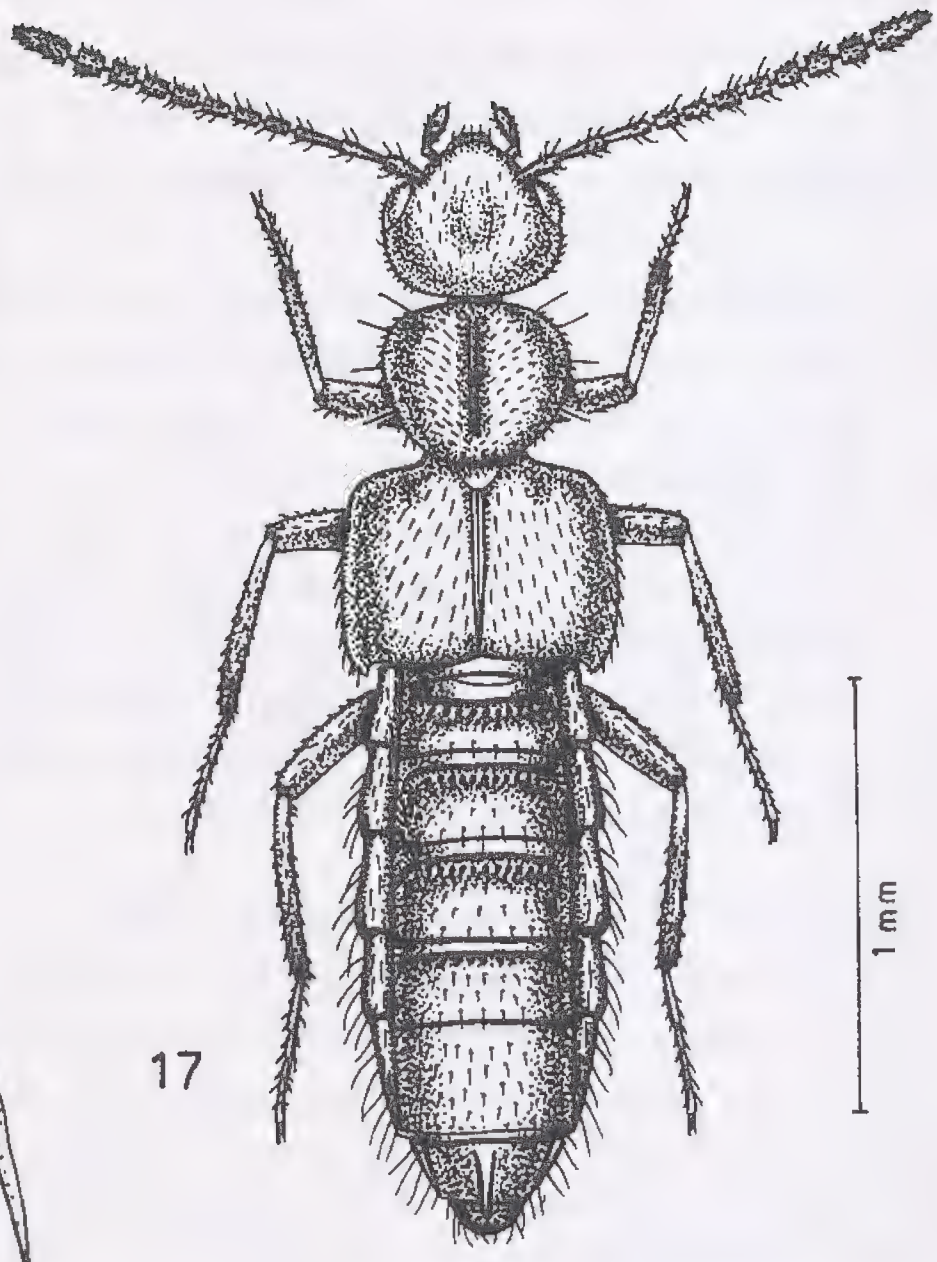

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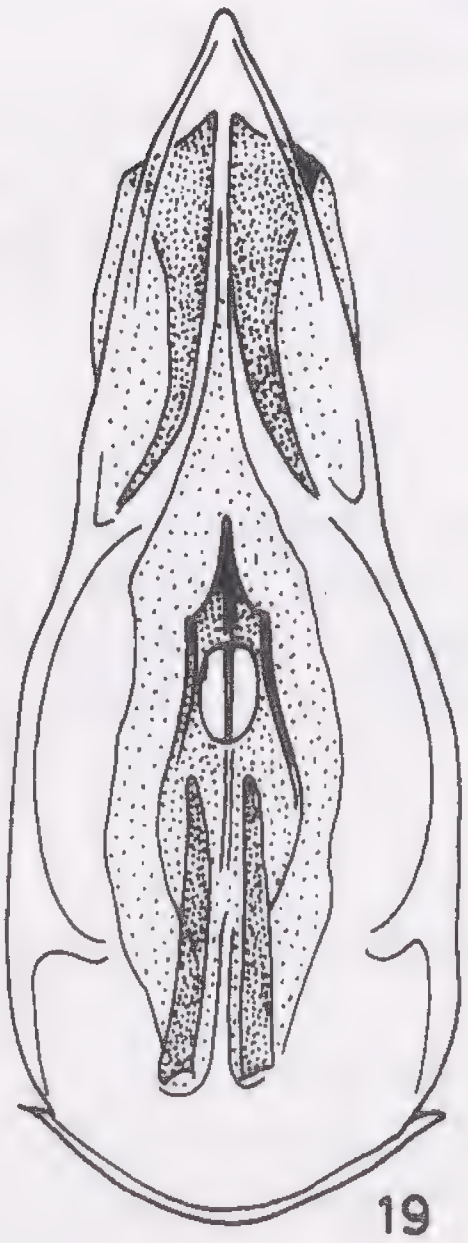

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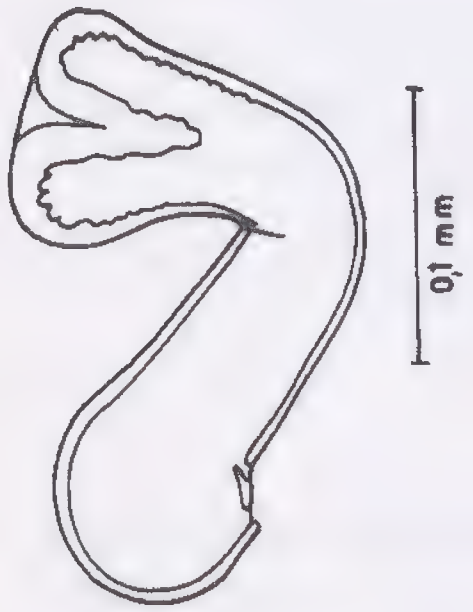

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Figg. 16-20. Sesto urotergo libero del maschio, habitus, edeago in visione laterale e ventrale e spermateca. 16: *Diestota namibiensis* n. sp.; 17-20: *Cordalia namibicola* n. sp.

addensati sulla fascia longitudinale mediana. Edeago figg. 22-23, spermateca fig. 24.

COMPARAZIONI: In base alla forma della spermateca, la nuova specie sembra sistematicamente vicina ad *A. externa* (Fauvel, 1907) della Rift-Valley e ad *A. interna* Pace, 1995, del Kenya. Se ne distingue in base ai caratteri della seguente chiave:

1 - Pronoto più lungo che largo; elitre più corte del pronoto. Lungh. 2,1 mm. Kenya ..*interna* Pace
- Pronoto lungo quanto largo; elitre più lunghe del pronoto 2

2 - Lati del pronoto appena sinuati davanti agli angoli posteriori; assenza di fossetta mediana posteriore del pronoto; tubercoletti del pronoto addensati sulla metà posteriore; spermateca meno esile, con rada microscultura interna del bulbo distale; maschio sconosciuto. Lungh. 2,9 mm. Rift-Valley .....*externa* (Fauvel)
- Lati del pronoto nettamente sinuati davanti agli angoli posteriori; è presente una fossetta triangolare mediana posteriore del pronoto; tubercoletti del pronoto addensati sulla fascia longitudinale mediana; spermateca più esile, con fittissima microscultura interna del bulbo distale. Lungh. 2,7 mm. Namibia ..... *namibiensis* n. sp.

Amanota miricornis n. sp. (figg. 25-28)

TIPI: Holotypus ♂, Namibia, E. Caprivi, Mudumu NP., Nakatwa, Kwando-Ufer Phragmites schlamming, 8-13.III.1992, (Uhlig leg., MBE). Paratypi: 1 ♀, Namibia, B. Caprivi, Katima Mulilo, Gesiebe, Geschwemme Tümpelaufer, 7.III.1992, (Uhlig leg.); 4 es., Namibia, Kavango; Kaudom-Camp, Wasserloch, Schilf + Gras-Gesiebe, 12-25.II.1992, (Uhlig leg.); 2 es., Namibia, Kavango: Gelukkie, Kavango-Ufer, 1.III.1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 2,7 mm. Corpo lucido e bruno con uriti liberi 1° e 2° bruno-rossicci; antenne brune con i due antennomeri basali giallo-rossicci e l'undicesimo giallo paglierino; zampe giallo-rossicce. Solo le elitre mostrano una reticolazione che è assai svanita. I tubercoletti della superficie del capo sono fittissimi e assai svaniti, quelli del pronoto sono distinti e fitti. Le elitre sono coperte di punteggiatura superficiale. Edeago figg. 25-26, spermateca fig. 27.

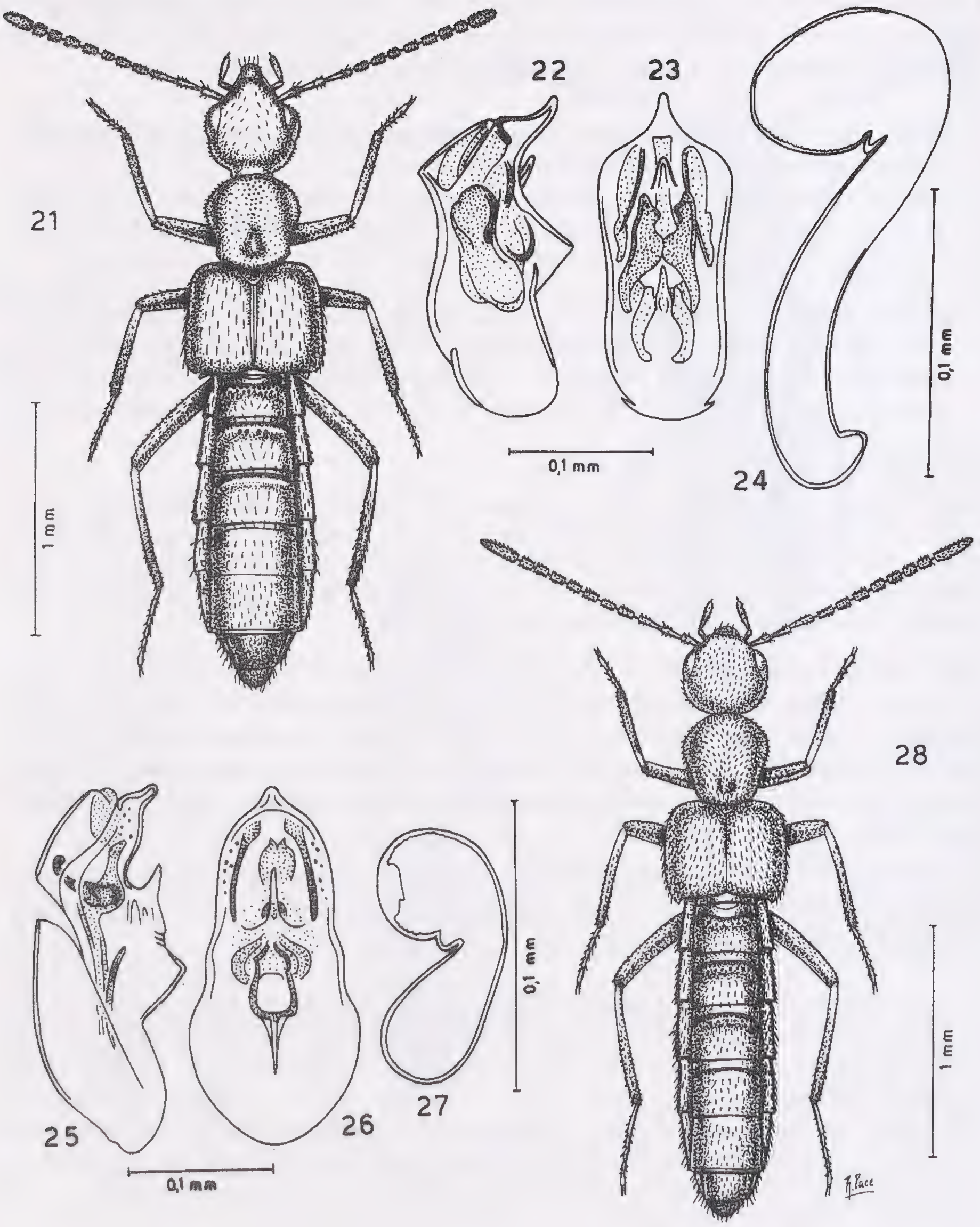
COMPARAZIONI: La nuova specie ha habitus simile a quello di *A. burgeoni* (Bernhauer, 1934), di Mombasa, noto per il solo holotypus ♂ (esaminato). Se ne distingue per i caratteri dati nella seguente chiave:

1 - Antenne brune con i tre antennomeri basali giallo-brunicci; pronoto lungo quanto largo, con tre punti basali mediani; solco basale del 3° urotergo libero privo di punti; edeago nettamente più sviluppato, maggiore più di un terzo, senza appendici presso la "crista apicalis". Lungh. 3,6 mm. Mombasa..... *burgeoni* (Bernhauer)
- Antenne bruno-rossicce con i due antennomeri basali giallo-rossicci e l'undicesimo giallo paglierino; pronoto più lungo che largo, con una fossetta mediana posteriore; solco basale del 3° urotergo libero, punteggiato; edeago meno sviluppato, con un'appendice presso la "crista apicalis". Lungh. 2,7 mm. Namibia ..... *miricornis* n. sp.

Amanota uhligi n. sp. (figg. 29-30)

TIPI: Holotypus ♀, Namibia, Kavango, Buffalo-camp, Kavango-Ufervegetation gesiebt, 28.II.1992, (Uhlig leg., MBE). Paratypi: 1 ♀, stessa provenienza; 2 ♀♀, Namibia, E., Caprivi: Katima Mulilo, lux, 5-8.III.1992 (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 2,7 mm. Corpo lucido e bruno-rossiccio con i due uriti basali gial-



Figg. 21-28. Habitus, edeago in visione laterale e ventrale e spermateca. 21-24: *Amanota namibiensis* n. sp.; 25-28: *Amanota miricornis* n. sp.

lo-rossicci; antenne brune con i due antennomeri basali giallo-rossicci e l'undicesimo giallo; zampe gialle. Su tutto il corpo non vi è presenza di microreticolazione. I tubercoletti della superficie del capo sono fini e non fitti, quelli della parte anteriore del pronoto sono finissimi e gradualmente più netti e fitti verso la parte posteriore. La punteggiatura delle elitre è finissima e poco distinta. Spermateca fig. 30.

COMPARAZIONI: La nuova specie è affine ad *A. externa* (Fauvel, 1907), della Rift-Valley, per la presenza di tubercoletti addensati sulla metà posteriore del pronoto e per l'habitus simile. Se ne differenzia per i caratteri dati nella seguente chiave:

1 - Corpo tozzo; 11 ° antennomero rossiccio, lungo quanto i due antennomeri precedenti considerati insieme; elitre lunghe, con la sutura appena più corta della lunghezza del pronoto; solchi basali dei due uroterghi liberi nettamente punteggiati; parte sottile della spermateca lunga quanto l'asse minore del bulbo distale della spermateca stessa. Lungh. 2,9 mm. Rift-Valley .... *externa* (Fauvel)

\- Corpo slanciato; 11° antennomero giallo, più lungo dei due antennomeri precedenti considerati insieme; elitre corte, con la sutura nettamente più corta della lunghezza del pronoto; solco basale del 1° urotergo libero con 2 punti, i restanti uroterghi privi di punteggiatura; parte sottile della spermateca lunga più di 2 volte e mezzo l'asse minore del bulbo distale della spermateca stessa. Lungh. 2,7 mm. Namibia ..... *uhligi* n. sp.

ETIMOLOGIA: La nuova specie prende nome dal suo raccoglitore, il dr Manfred Uhlig del Museo di Storia naturale di Berlino.

Gnypeta uhligi n. sp. (figg. 31-32)

TIPO: Holotypus ♀, Namibia, E. Caprivi, 30 Km SE Katima Mulilo, Zambesi-Altwasserarm, lux, 6.III.1992, (Uhlig leg., MBE).

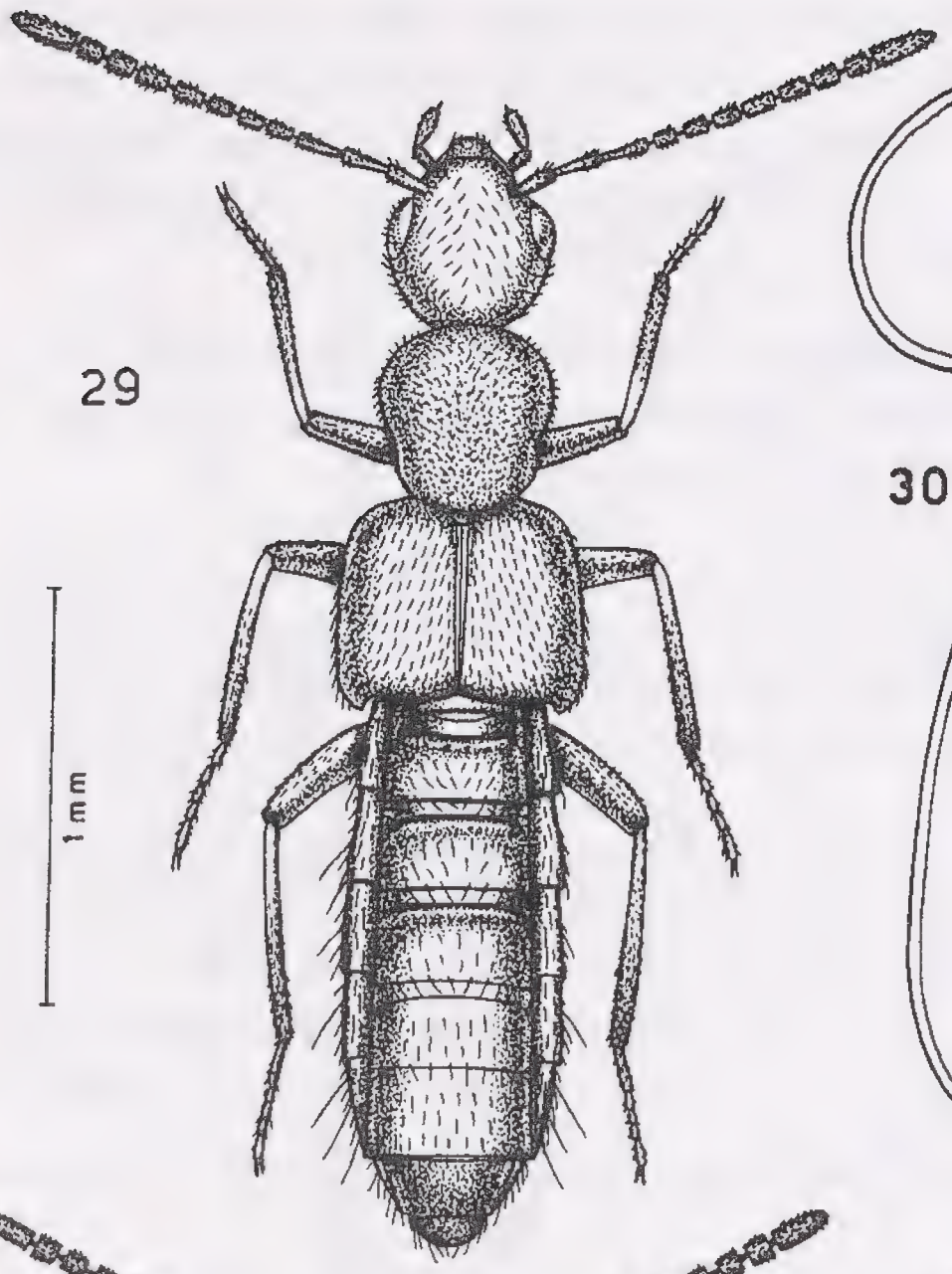
DESCRIZIONE: Lungh. 2,2 mm. Corpo lucido e bruno-gialliccio con capo e uriti liberi 3°, 4° e 5° bruni; antenne brune con i due antennomeri basali di un giallo sporco; zampe gialle. L'intero corpo è coperto di tubercoletti fini e fittissimi, posti su un fondo non microreticolato. Il pronoto presenta un debole solco mediano posteriore. Spermateca fig. 31.

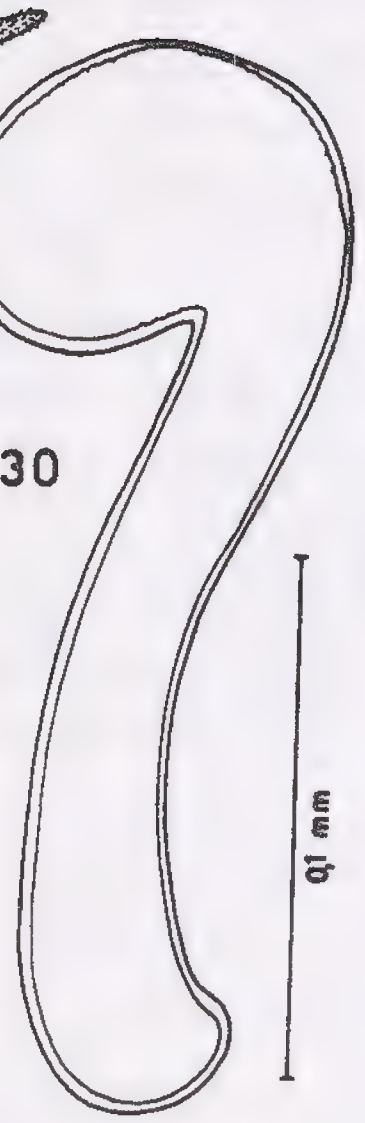
COMPARAZIONI: La nuova specie è distinta da *G. africana* Bernhauer, 1943, dello Zaire, per avere gli occhi ridotti, con tempie più lunghe degli occhi (tempie più corte degli occhi in *africana*) e il pronoto più largo che lungo (più lungo che largo in *africana*), oltre che per il colore differente del corpo (nero profondo con tarsi e ultimo antennomero giallicci in *africana*).

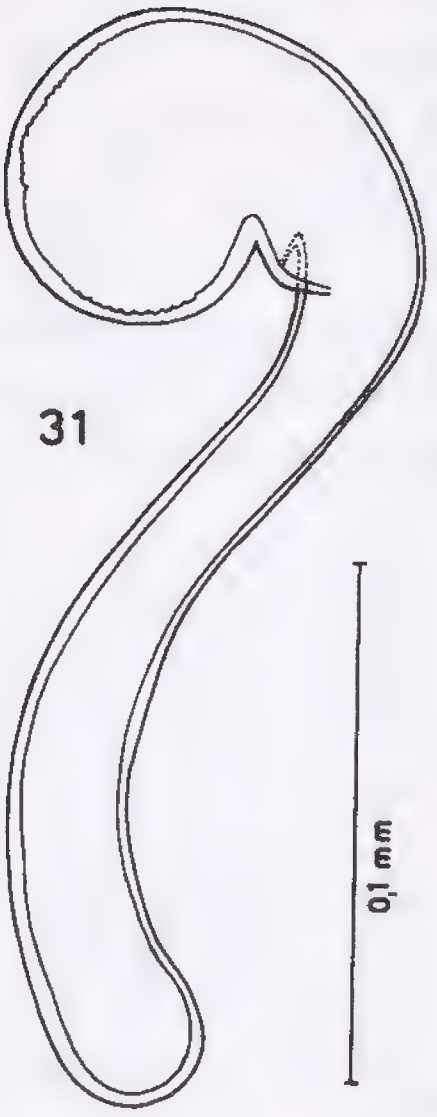
Gnypeta namibiensis n. sp. (figg. 35-34)

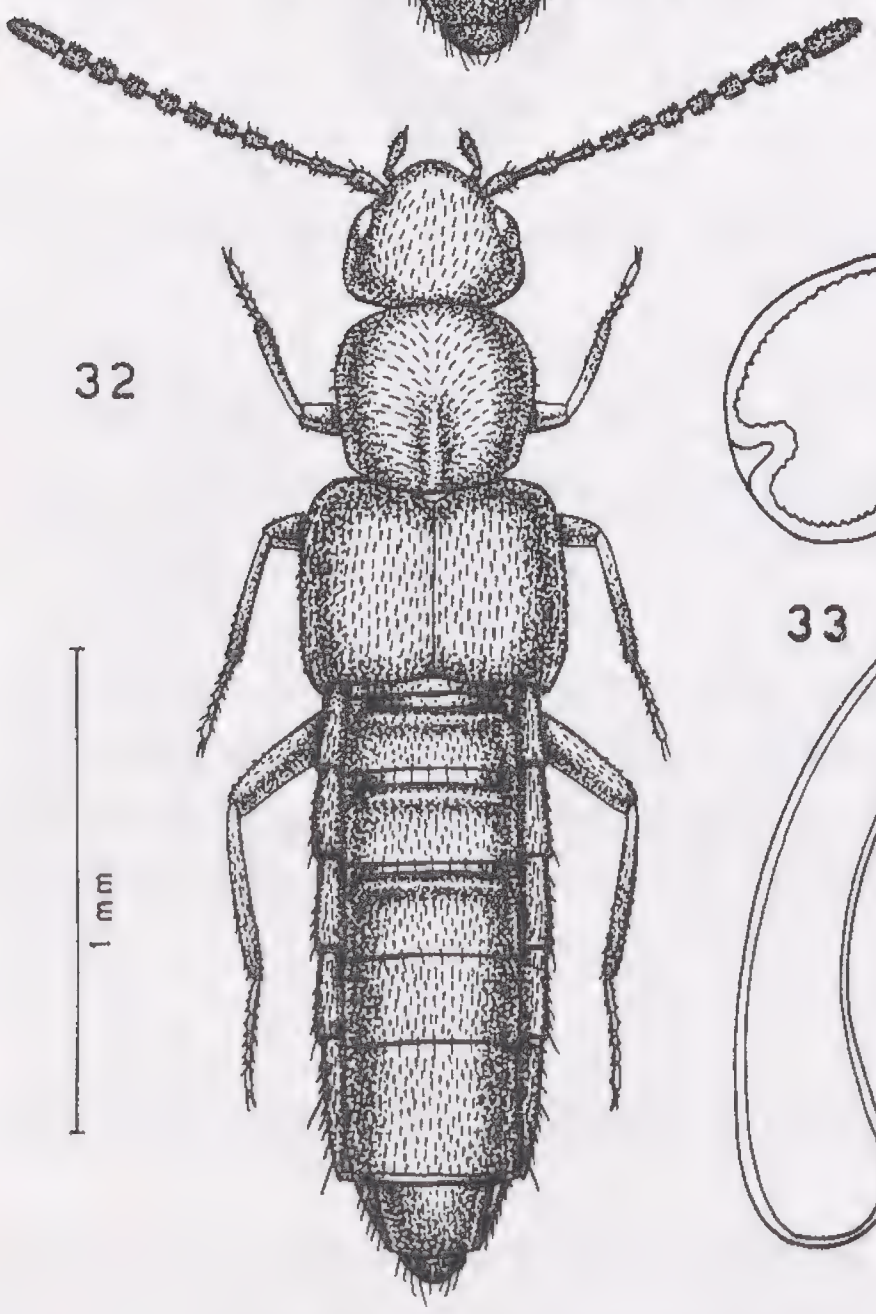
TIPO: Holotypus ♀, Namibia, East Caprivi: Katima Mulilo, Gesiebe/Geschwemnlew Tümpelufer, 7.III.1992, (Uhlig leg., MBE):

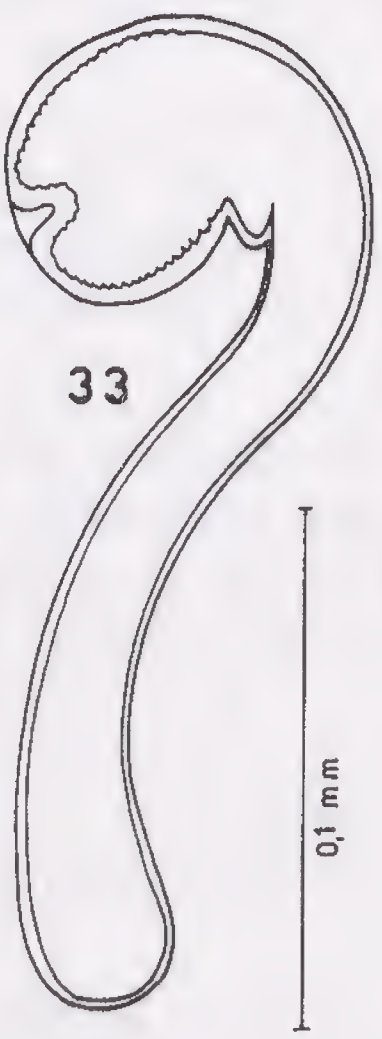
DESCRIZIONE: Lungh. 2,7 mm. Corpo lucido e nero-bruno con elitre brune; antenne brune con l'antennomero basale e l'undicesimo bruno-rossicci; zampe giallo-brune. L'avancorpo è coperto di reticolazione distinta. Sul capo e sul pronoto non sono visibili né punteggiatura né tubercoletti. Le elitre sono coperte di tubercoletti fitti e confusi nella reticolazione. L'addome ha pubescenza d'aspetto sericeo. Spermateca fig. 33.

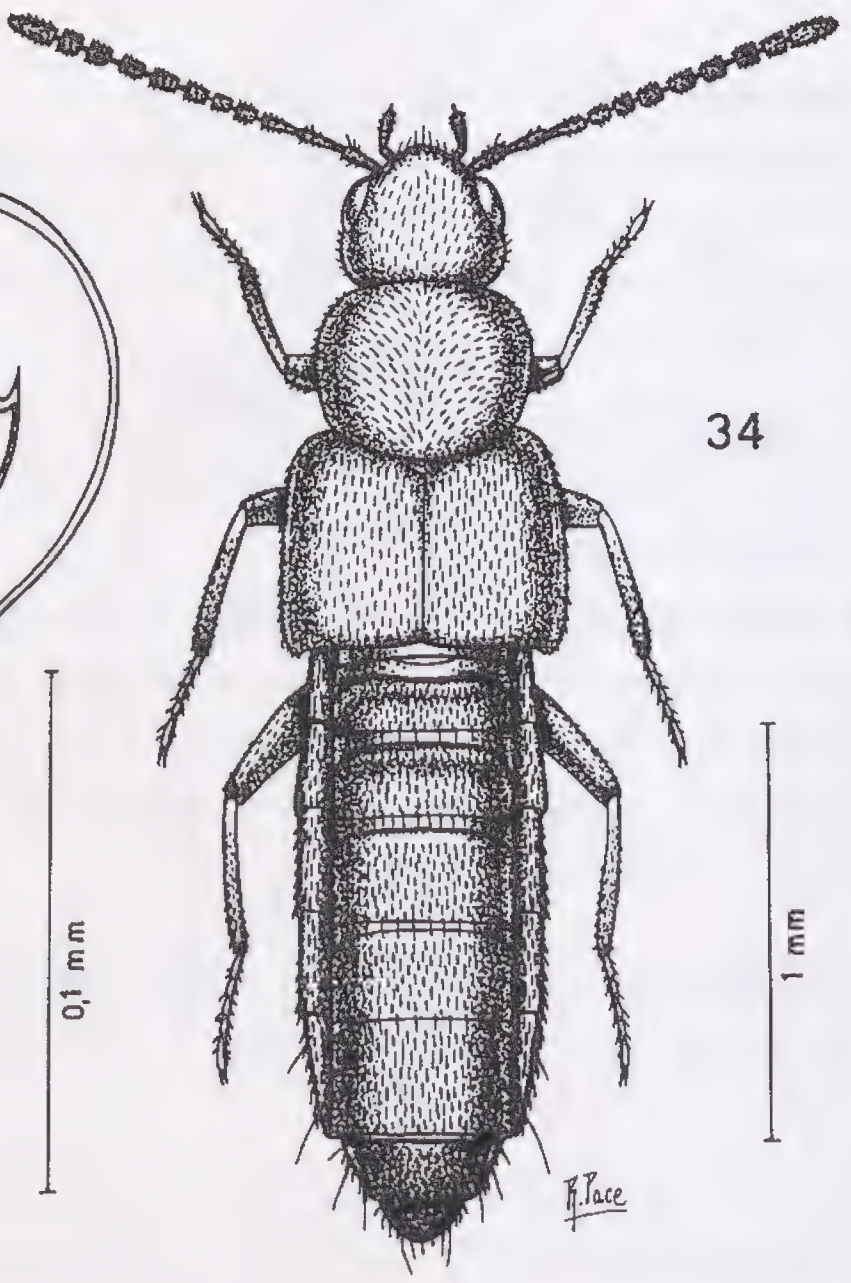












Figg. 29-34. Habitus e spermateca. 29-30: *Amanota uhligi* n. sp.; 31-32: *Gnypeta uhligi*; 33-34: *Gnypeta namibiensis* n. sp.

COMPARAZIONI: La nuova specie è distinta da *G. africana* Bernhauer, dello Zaire, per avere gli occhi meno sviluppati, tempie lunghe quanto gli occhi (tempie un po' più corte degli occhi in *africana*), per il pronoto più largo che lungo (più lungo che largo in *africana*) e per gli uriti fittamente pubescenti (uriti molto sparsamente pubescenti in *africana*).

Tribù Deremini

Longiprimitarsus roeri n. sp. (figg. 35-38)

TIPI: Holotypus ♀, Namibia, Nyangana, Okavango, 14-22. I.1985, (H. Roer leg., MBO). Paratypi: 1 ♂, Namibia, Kavango: Kaudom-camp, lux, 22-25.II.1992, (Uhlig leg.); 1 ♀, Namibia, E. Caprivi: 30 Km SE Katima Mulilo, Zambesi-Altwasserarm, Lux, (Uhlig leg.).

DESCRIZIONE: Lungh. 2,9 mm. Corpo debolmente opaco e bruno-rossiccio con addome rossiccio scuro; antenne bruno-rossicce con i tre antennomeri basali giallo-rossicci; zampe giallo-rossicce. L'intero corpo è coperto di pubescenza sericea. La punteggiatura del capo è fitta e svanita, quella del pronoto e delle elitre è composta di punti contigui distinti. Edeago figg. 36-37, spermateca fig. 38.

COMPARAZIONI: La nuova specie è affine a *L. longipennis* Bernhauer, 1934, di Mombasa (tipi esaminati). E' distinta per i caratteri dati nella seguente chiave:

1 - Elitre molto più lunghe del pronoto, che è privo di impressione mediana basale posteriore ed è bruno-gialliccio; edeago meno sviluppato, con "crista apicalis" poco sviluppata; apice dell'edeago tronco, in visione ventrale; bulbo distale della spermateca, sferico, con breve introflessione apicale. Lungh. 2,4 mm. Mombasa, Burundi.....*longipennis* Bernhauer
- Elitre appena più lunghe del pronoto che presenta un'impressione mediana posteriore ed è bruno-rossiccio; edeago più sviluppato con "crista apicalis" molto saliente; apice dell'edeago arrotondato, in visione ventrale; bulbo distale della spermateca emisferico, senza introflessione apicale. Lungh. 2,9 mm. Namibia ..... *roeri* n. sp.

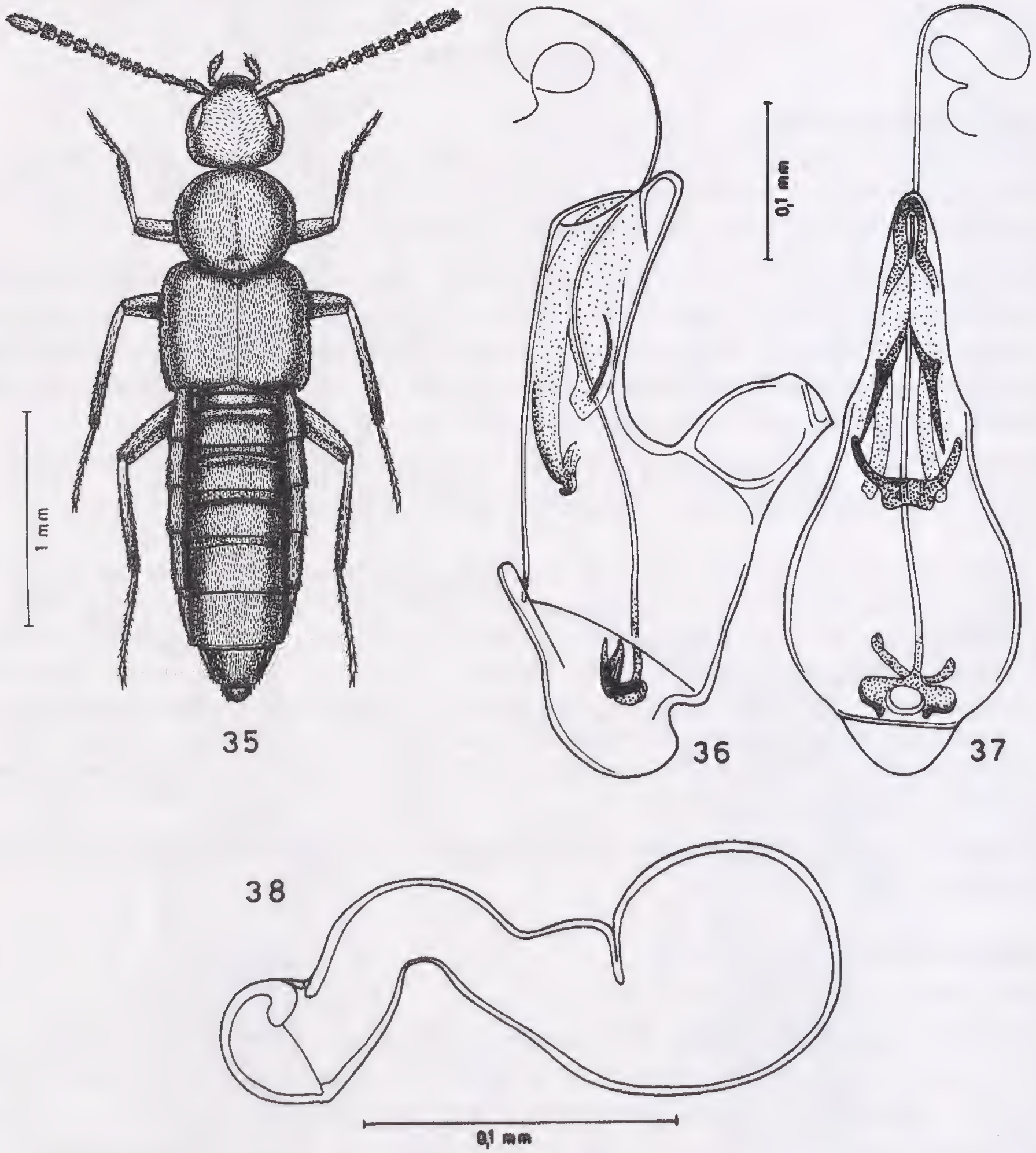
ETIMOLOGIA: Specie dedicata al suo primo raccoglitore, il dr H. Roer del Museo di Storia Naturale di Bonn.

Notelyglypha gen. n. (figg.39-44)

Typus generis: *Notelyglypha uhligi* n. sp.

DESCRIZIONE: Epicranio più largo che lungo, con collo stretto, privo di solchi o carene sul disco; tempie non marginate e divergenti all'indietro; antenne di 11 antennomeri; maxille con lobo esterno più lungo dell'interno, con lunghe setole apicali; lobo interno con setole del margine interno molto lunghe; palpi mascellari di 4 articoli (fig. 40); palpi labiali di 3 articoli (fig. 41); ligula cortissima e divisa in due larghissimi lobi; paraglosse prominenti; mento trapezoidale (fig. 42); pronoto molto trasverso, con margine anteriore bisinuato e con 4 carene longitudinali molto salienti; elitre con una carena discale molto saliente, sutura meno saliente e parte esterna a superficie profondamente incavata; processo mesosternale stretto e appuntito, insinuato tra le mesocoxe che sono tra loro contigue; addome fittamente pubescente: solo il 1° urotergo libero presenta un solco basale trasverso; formula tarsale 4-5-5; 1° tarsomero posteriore lungo più dei 3 seguenti tarsomeri presi insieme.

ETIMOLOGIA: Il nome del nuovo genere significa: "Schiena (cioé pronoto) ed elitre scolpite".



Figg. 35-38. *Longiprimitarsus roeri* n. sp.: Habitus, edeago in visione laterale e ventrale e spermateca.

COMPARAZIONI: In base alla riccamente illustrata revisione della tribù Deremini di Kistner & Jacobson (1979), il nuovo genere *Notelyglypha*, per la forma delle parti boccali e dell'edeago può essere avvicinato sistematicamente al genere *Medera* Kistner & Jacobson, 1979. Se ne distingue nettamente per la forma della ligula, composta di due larghi lembi (e non di due lembi triangolari come in *Medera*) e, soprattutto, per le carene molto salienti del pronoto e delle elitre (assenti in *Medera*).

Notelyglypha uhligi n. sp. (figg. 39-44)

TIPO: Holotypus ♂, Namibia, Kavango: Popa Falls, Kayango-Ufer, Schif-Papyrus-Ufer-Vegetation, gesiebt, 13.III.1992, (Uhlig leg., MBE).

DESCRIZIONE: Lungh. 2,1 mm. Capo opaco, resto del corpo lucido. Corpo giallo-bruno con pronoto ed elitre di un giallo sporco e con il 1° urite libero e il margine posteriore degli altri uroterghi rossicci; antenne giallo-brune con i tre antennomeri basali gialli; zampe gialle. Il capo presenta la superficie coperta di tubercoletti salienti, contigui e fitti che danno un aspetto rugoso alla superficie. Il pronoto è coperto di tubercoletti svaniti non fitti e mostra 4 carene molto salienti. Le elitre presentano la superficie coperta di tubercoletti distinti e di reticolazione superficiale e una carena discale molto saliente. La sutura è meno saliente di questa carena. Il 5° urotergo libero mostra una pubescenza meno fitta di quella presente sugli altri uroterghi. Edeago figg. 43-44.

ETIMOLOGIA: La nuova specie è dedicata al suo raccoglitore, il dr Manfred Uhlig, noto studioso di Staphylinidae del Museo di Storia naturale di Berlino.

Medera namibicola n. sp. (figg. 45-46)

TIPO: Holotypus ♀, Namibia, Grootfontein: Askavolt-Barm, 20 Km E. Otavi, 18.II.1992, (Uhlig leg., MBE).

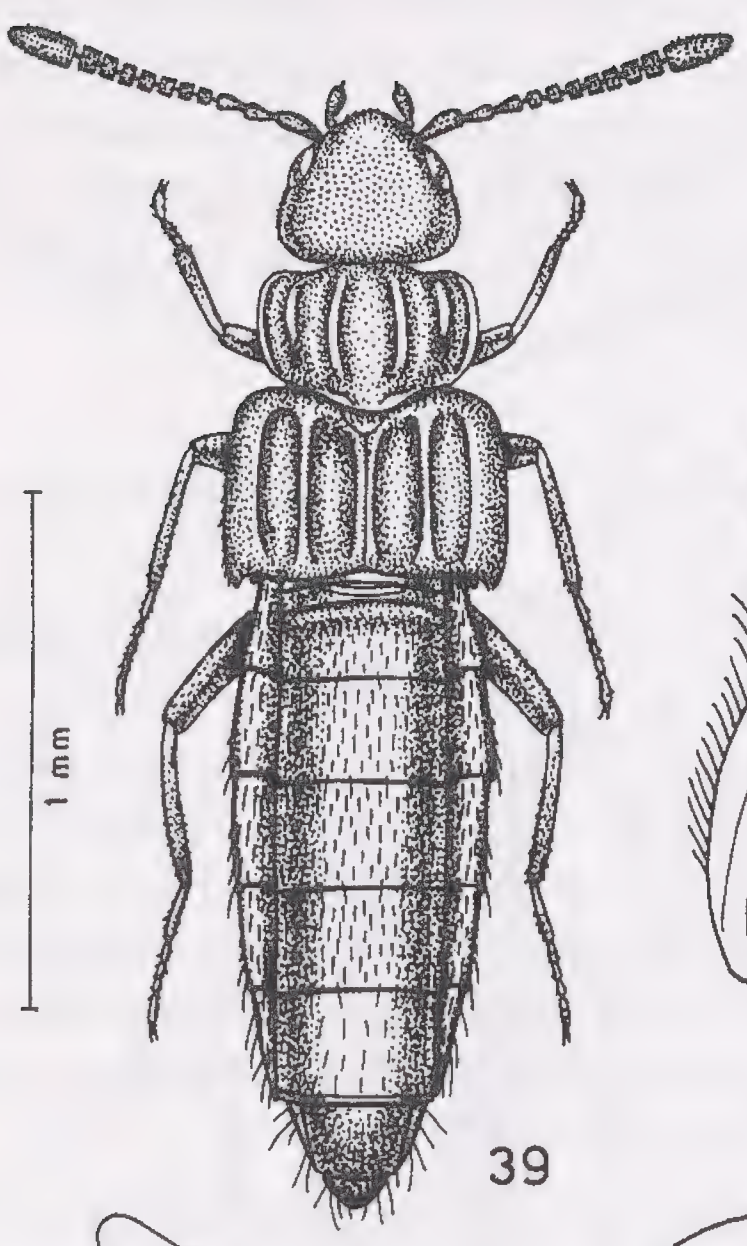
DESCRIZIONE: Lungh. 2,1 mm. Avancorpo debolmente opaco, addome lucido. Corpo giallo-rossiccio con uriti liberi 3°, 4° e 5° bruni con margine posteriore rossiccio; antenne brune con i tre antennomeri basali gialli; zampe giallo-rossicce. La reticolazione del capo è distinta, quella del pronoto netta, quella delle elitre svanita e quella dell'addome assente. La punteggiatura è fitta, composta da punti medi, molto svaniti e tra loro contigui. Il pronoto è coperto di tubercoletti assai svaniti e fitti. Tubercoletti distinti coprono la superficie delle elitre. Alla base di ciascun urotergo sono presenti punti distinti, sul resto della superficie degli uroterghi la punteggiatura è composta da punti allungati e svaniti. Spermateca fig. 46.

COMPARAZIONI: In base alla forma della spermateca, la nuova specie in base all'esame dei tipi sembra affine a *M. obscura* (Cameron, 1926), dello Zaire. Se ne distingue per il pronoto più trasverso, per gli occhi più ridotti e per il bulbo distale della spermateca molto sviluppato (poco sviluppato in *obscura*).

Tribù Athetini

Hydrosmecta namibiana n. sp. (Figg. 47-48)

TIPO: Holotypus ♀, Namibia, Windhoek: Daan Viljoen, spärlich bewachsenes Ufer, 13-15.II.1992, (Uhlig leg., MBE).



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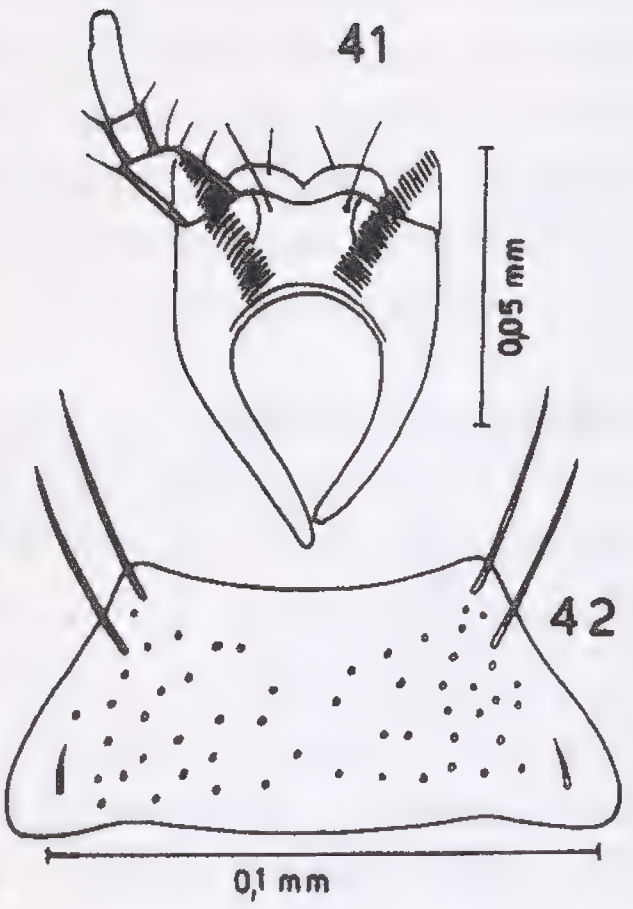

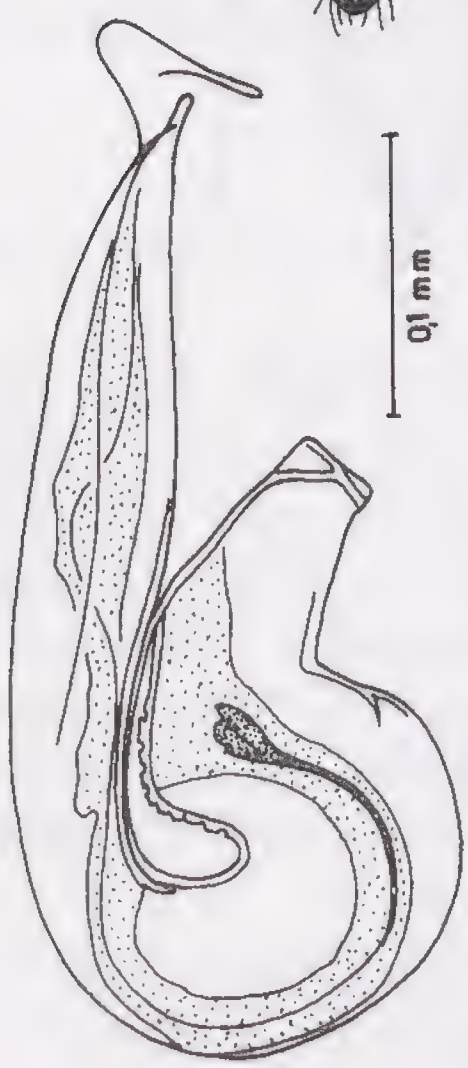

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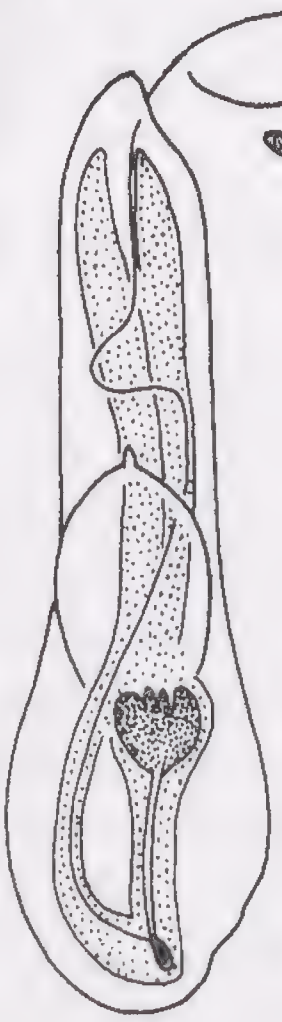

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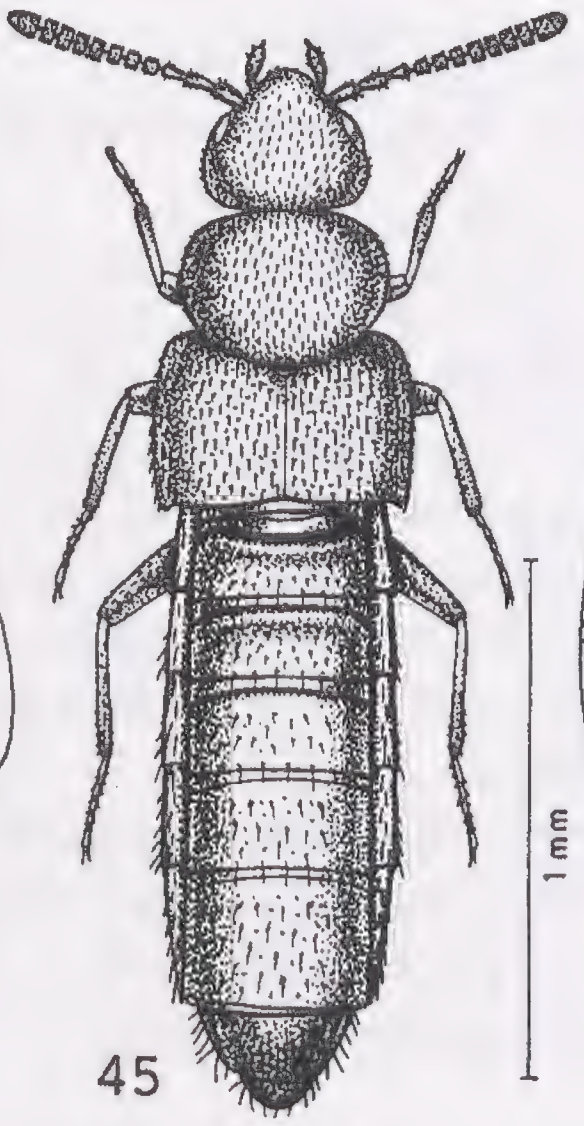

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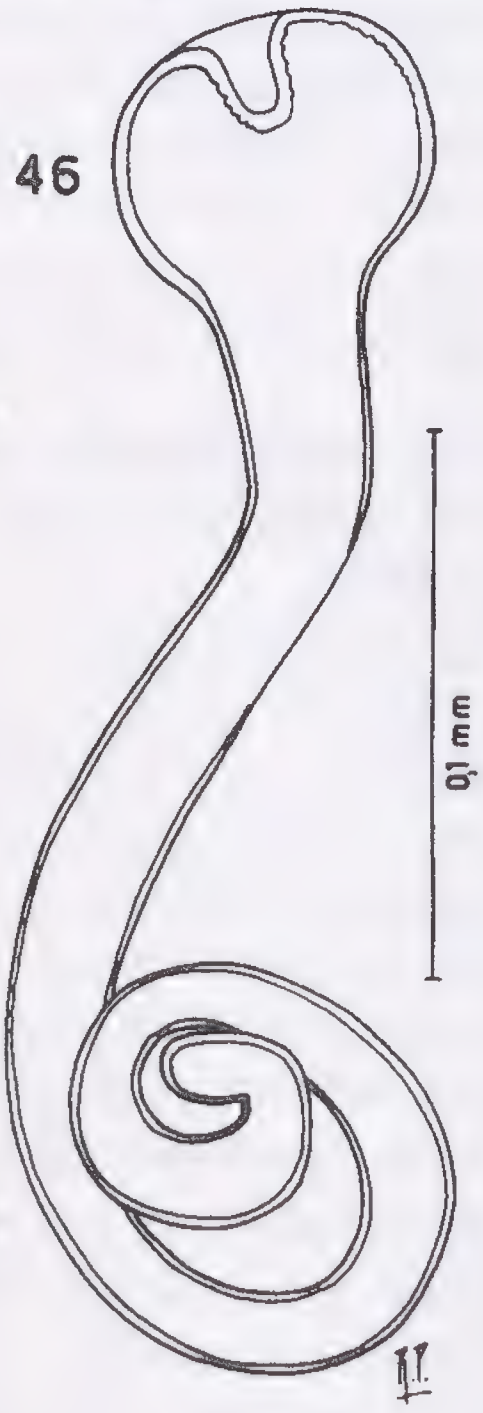

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Figg 39-46. Habitus, maxilla con palpo mascellare, labio con palpo labiale, mento, edeago in visione laterale e ventrale e spermateca. 39-44: *Notelyglypha uhligi* gen. n. n. sp.; 45-46: *Medera namibicola* n. sp.

DESCRIZIONE: Lungh. 2,2 mm. Corpo lucido, poco convesso e bruno-pece con elitre bruno-giallicce e con margine posteriore degli uroterghi rossiccio; antenne brune con i tre antennomeri basali bruno-rossicci; zampe di un giallo sporco. La reticolazione del capo, del pronoto e dell'addome è svanita, quella delle elitre è distinta. Il capo e il pronoto sono coperti di punteggiatura fine, fitta e svanita. Le elitre non mostrano né tubercoletti né punteggiatura. Gli uroterghi liberi 1° a 4° mostrano la superficie coperta di tubercoletti che sono più distinti e più salienti sulla metà posteriore di ciascuno; il 5° urotergo libero mostra tubercoletti poco distinti. Spermateca fig. 48.

COMPARAZIONI: La nuova specie è ben distinta da *H. thinobioides* (Kraatz, 1854), a diffusione paleartica, per avere il pronoto meno trasverso, le elitre nettamente più corte e i femori non oscurati.

Geopora ujuiensis (Bernhauer, 1915)

Atheta (*Metaxia*) *ujuiensis* Bernhauer, 1915: 182

Geopora ujuiensis: Pace, 1986: 86

4 es., Namibia, B. Caprivi, 30 Km SE Katima Mulilo, Zambezi-Altwasserarm, lux, 6.III.1992, (Uhlig leg.); 2 es., Namibia, Kavango: Kaudom-Camp, Wasserloch, Schlf+Gras-Gesiebe, 22-25.II.1992, (Uhlig leg.); 1 ♂, stessa provenienza, ma lux; 3 es.; Namibia, East Caprivi: Mudumu NP.: Nakatwa, 8-15.III.1992, (Uhlig leg.); 1 es., stessa provenienza, ma Buffalo Trails Camp, lux, 12.III.1992, (Uhlig leg.); 2 es., Namibia, Kavango: Popa Falls, Kavango-Ufer, Schilf-*Papyrus*, Ufer-Vegetation, gesiebt, 2.III.1992, (Uhlig leg.); 4 es., Namibia, E. Caprivi: 30 Km SE Katima Mulilo, Zambezi-Altwasserarm, lux, 6.III.1992, (Uhlig leg.) (MBA, MT).

Specie nota anche di diverse località della Tanzania.

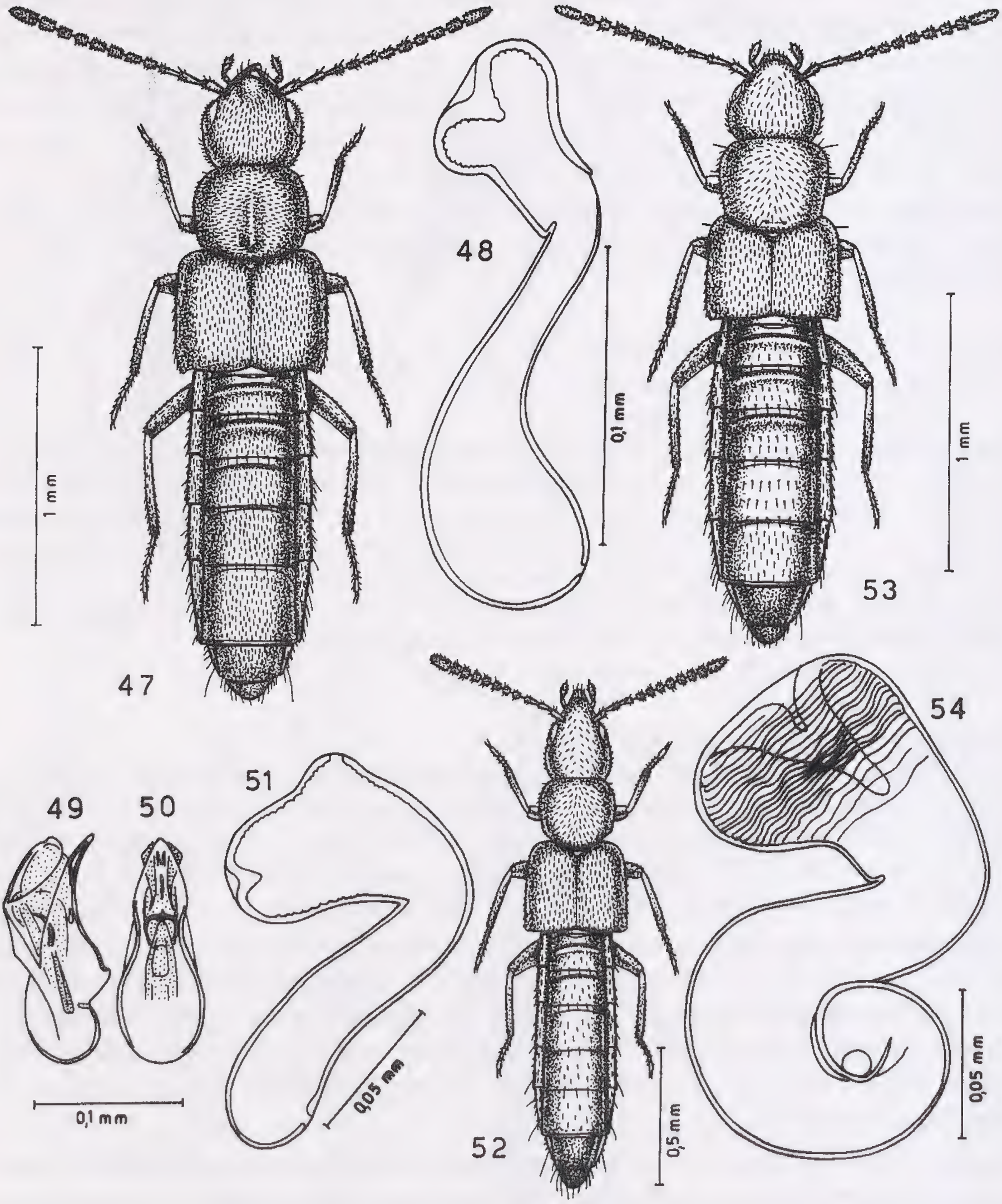
Geopora namibiensis n. sp. (figg. 49-52)

TIPI: Holotypus ♂; Namibia, Kavango: Kaudom-Camp Wasserloch, Schilf+Gras-Gesiebe, 22-25.II.1992, (Uhlig leg., MBE). paratypi: 3 ♀♀, stessa provenienza; 1 ♀, Namibia, E. Caprivi, 50 Km SE Katima Mulilo, Zambezi Altwasserarm, lux, (Uhlig leg.); 1 ♀, Namibia, Kavango: Pope Falls, Kavango-Ufer, Schilf-Papyrus-Ufer-Vegetation, gesiebt, 2.III.1992, (Uhlig leg.); 1 ♀, Namibia, Kavango: Gelukkie, Kavango-Ufer, 1.III.1992, (Uhlig leg.).

DESCRIZIONE: Lungh. 1,8 mm. Corpo lucido e giallo-rossiccio sporco; capo bruno-rossiccio, uriti liberi 1°, 2° 5° e 6° giallo-rossicci e 3°, 4° e base del 5° bruni; antenne gialle con i tre antennomeri basali giallo-pallidi; zampe gialle. L'intera superficie del corpo è coperta di reticolazione distinta. Sull'avancorpo non si notano né punteggiatura né tubercoletti. Tubercoletti distinti coprono la superficie degli uroterghi. Edeago figg. 49-50, spermateca fig. 51.

COMPARAZIONI: Le specie che per la forma della spermateca sembrano affini alla nuova specie sono *G. aequinoctialis* (Fauvel, 1900) dello Zaire (tipi esaminati) e *G. umtaliensis* Pace, 1995 della Rodesia. I tre taxa possono essere distinti in base ai caratteri dati nella seguente chiave:

1 - Corpo poco slanciato e robusto; spermateca senza distinta bozza laterale del bulbo distale. Lungh. 1,9 mm. Zaire ..... *aequinoctialis* (Fauvel)
- Corpo slanciato ed esile; spermateca con distinta bozza laterale del bulbo distale 2
2 - Pronoto con angoli anteriori distinti; spermateca con introflessione apicale del bulbo distale



Figg 47-54. Habitus, spermateca ed edeago in visione laterale e ventrale. 47-48: *Hydrosmecta namibiana* n. sp.; 49-52: *Geopora namibiensis* n. sp.; 53-54: *Atheta* (*Traumoecia*) *undosa* n. sp.

ampiamente semicircolare; maschio sconosciuto. Lungh. 2,0 mm. Rodesia.....
..... *umtaliensis* Pace
- Pronoto con angoli anteriori arrotondati; spermateca meno sviluppata, con introflessione apicale del bulbo distale ridotta e conica. Lungh. 1,8 mm. Namibia.....*namibiensis* n. sp.

Nehemitropia persordida Pace, 1984

Nehemitropia persordida Pace, 1984: 534

17 es., Namibia, Nyangana, Okavango, 12-22.I.1989, (Roer leg.); 1 ♂ e 1 ♀, Namibia, Kavango: Mahango Game Reserve, 28.II.1992, (Uhlig leg.); 1 es., stessa provenienza, ma Seeufer; 1 es., stessa provenienza, ma Elefantenmist (MT).

Specie finora nota del Madagascar.

Atheta (Traumoecia) undosa n. sp. (figg. 53-54)

TIPI: Holotypus ♀, Namibia, Kavango: Kaudom Camp, Wasserloch, Schilft+Gras-Gesiebe, 22.25.II.1992, (Uhlig leg., MBE). Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE: Lungh. 2,1 mm. Corpo lucido e bruno con elitre bruno-rossicce e 4° urite libero nero-bruno; antenne brune con i 4 antennomeri basali gialli; zampe gialle. La reticolazione è distinta sull'avancorpo e sul 5° urite libero, è svanita sui restanti uroterghi. I tubercoletti che coprono la superficie dell'avancorpo sono distinti, quelli dei 4 uriti basali sono svaniti e quelli del 5° urite libero sono pure distinti. Spermateca fig. 54.

COMPARAZIONI: In base alla forma della spermateca, la nuova specie si colloca sistematicamente vicina ad *A. rudiventroides* Pace, 1986, della Tanzania. Se ne distingue per i seguenti caratteri:

1 - Corpo tozzo; occhi meno ridotti; penultimi antennomeri più lunghi che larghi; elitre proporzionalmente più sviluppate; introflessione apicale del bulbo distale della spermateca corta; microscultura della superficie interna del bulbo distale della spermateca assente. Lungh. 2,2 mm. Tanzania .....*rudiventroides* Pace
- Corpo snello; occhi più ridotti; penultimi antennomeri lunghi quanto larghi; elitre proporzionalmente più corte; bulbo distale della spermateca con introflessione apicale profondissima e con superficie interna a strie ondulate. Lungh. 2,1 mm. Namibia..... *undosa* n. sp.

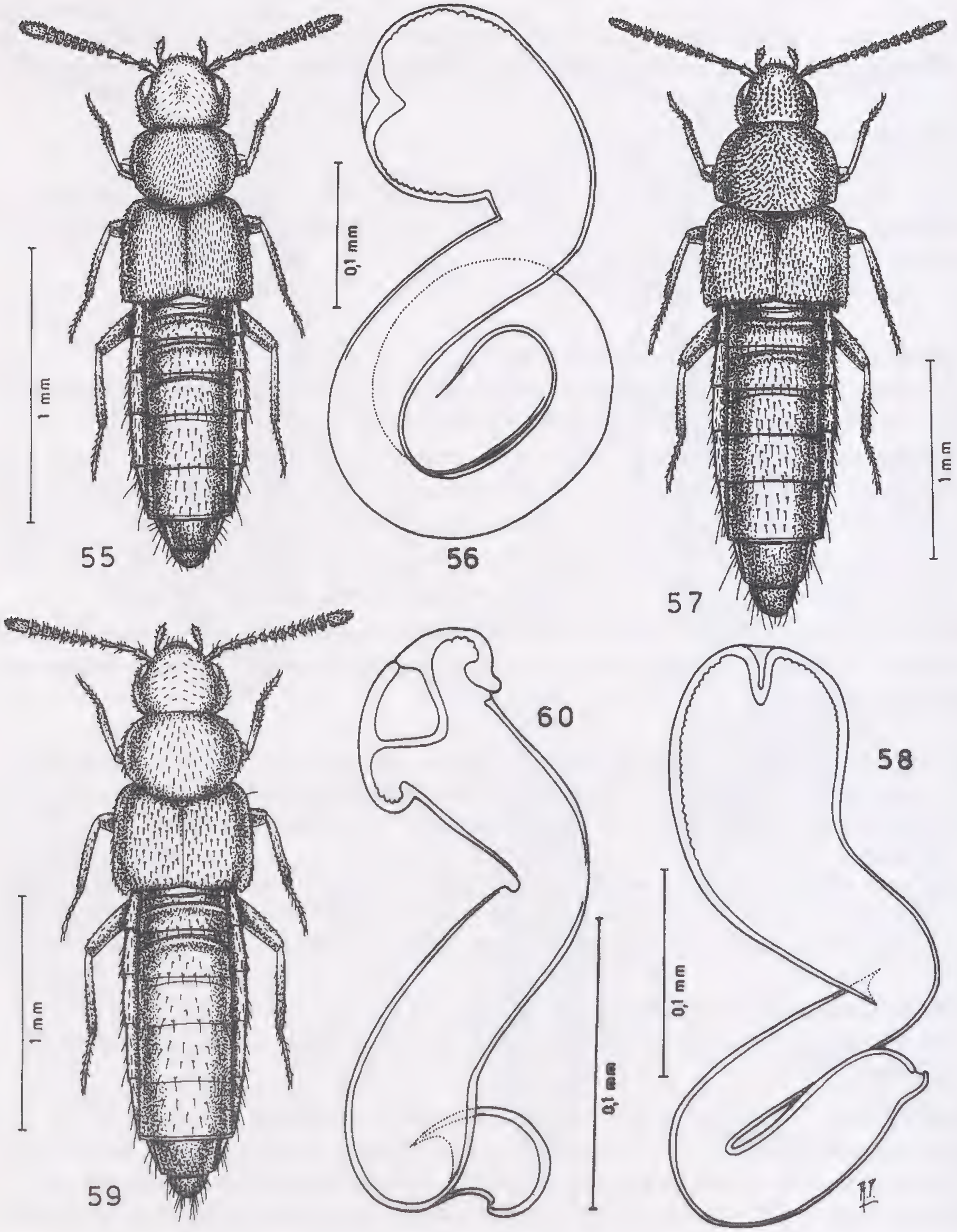
Atheta (Traumoecia) namibiensis n. sp. (figg. 55-56)

TIPO: Holotypus ♀, Namibia, Grootfontein: Askavolt-Barm, 20 Km E. Otavi, 18.II.1992, (Uhlig leg., MBE).

DESCRIZIONE: Lungh. 1,8 mm. Corpo lucido e bruno-gialliccio, con uriti liberi 4° e 5° neri; antenne brune con i due antennomeri basali e la base del terzo gialli; zampe gialle; l'intera superficie del corpo è coperta di distinta reticolazione. I tubercoletti che coprono la superficie dell'avancorpo sono poco salienti, quelli dell'addome sono salienti. Spermateca fig. 56.

COMPARAZIONI: La nuova specie in base alla struttura della spermateca e per l'habitus è simile ad *A.* (*Traumoecia*) *reptabunda* Pace, 1986, della Tanzania. Le due specie si distinguono come segue:

1 - Occhi molto ridotti; penultimi antennomeri debolmente trasversi; bulbo distale della spermate-



Figg. 55-60. Habitus e spermateca. 55-56: *Atheta* (*Traumoecia*) *namibiensis* n. sp.;57-58: *Atheta* (*Acrotona*) *caprivensis* n. sp.; 59-60: *Atheta* (*Oxypodera*) *dobensis* n. sp.

ca con introflessione apicale larghissima e profonda. Lungh. 1,7 mm. Tanzania .....
.....*reptabunda* Pace
- Occhi assai sviluppati; penultimi antennomeri fortemente trasversi; introflessione apicale del bulbo distale della spermateca, conica e breve. Lungh. 1,8 mm. Namibia .....
..... *namibiensis* n. sp.

Atheta (*Phanerosphena*) *alboguttata* Bernhauer, 1915

Atheta (*Datomicra*) *alboguttata* Bernhauer, 1915: 183
Geopora alboguttata: Pace, 1986: 86

1 ♂, Namibia, E. Caprivi: Muduma NP., Nakatwa, Kwando-Ufer, *Phragmites*, schlammig, 8-13.III.1992, (Uhlig leg., MBE), comparata con i tipi.

Specie finora nota solo della Tanzania.

Atheta (Acrotona) caprivensis n. sp. (figg. 57-58)

TIPI: Holotypus ♀, Namibia, East Caprivi: Mudumu NP., Buffalo Trails Camp, lux, 12.III.1992, (Uhlig leg., MBE). Paratypus: 1 ♀, Namibia, Kavango: Mahango Game Reserve: Elefantenmist, 28.II.1992, (Uhlig leg.) (MT).

DESCRIZIONE: Lungh. 2,8 mm. Corpo lucido e bruno, con uriti liberi 4° e 5° neri; antenne nere con i due antennomeri basali nero-bruni. L'avancorpo è microreticolato, l'addome mostra una reticolazione trasversa estremamente svanita.Il capo e il pronoto sono coperti di tubercoletti molto salienti e fitti. Tubercoletti salienti, un po' più sviluppati di quelli del pronoto coprono le elitre. Tubercoletti più salienti stanno al margine posteriore degli uroterghi. Spermateca fig. 58.

COMPARAZIONI: In base all'habitus e alla forma della spermateca, la nuova specie è sicuramente affine ad *A.* (*Acrotona*) *kawaensis* Cameron, 1932 dello Zaire (holotypus esaminato). Le due specie si distinguono come segue:

1 - Parte prossimale della spermateca nettamente esile e meno sviluppata; introflessione apicale del bulbo distale della spermateca stessa, assente. Lungh. 2,1 mm. Zaire ... *kawaensis* Cameron
- Parte prossimale della spermateca, robusta e più sviluppata; è presente l'introflessione apicale del bulbo distale della spermateca stessa. Lungh. 2,8 mm. Namibia..... *caprivensis* n. sp.

Atheta (*Xenota*) *coriaria* (Kraatz, 1858)

Homalota coriaria Kraatz, 1858: 282
Atheta (s. str.) *coriaria*: Cameron, 1939: 344; Scheerpeltz, 1974: 271
Atheta (*Xenota*) *coriaria*: Pace, 1984c: 263

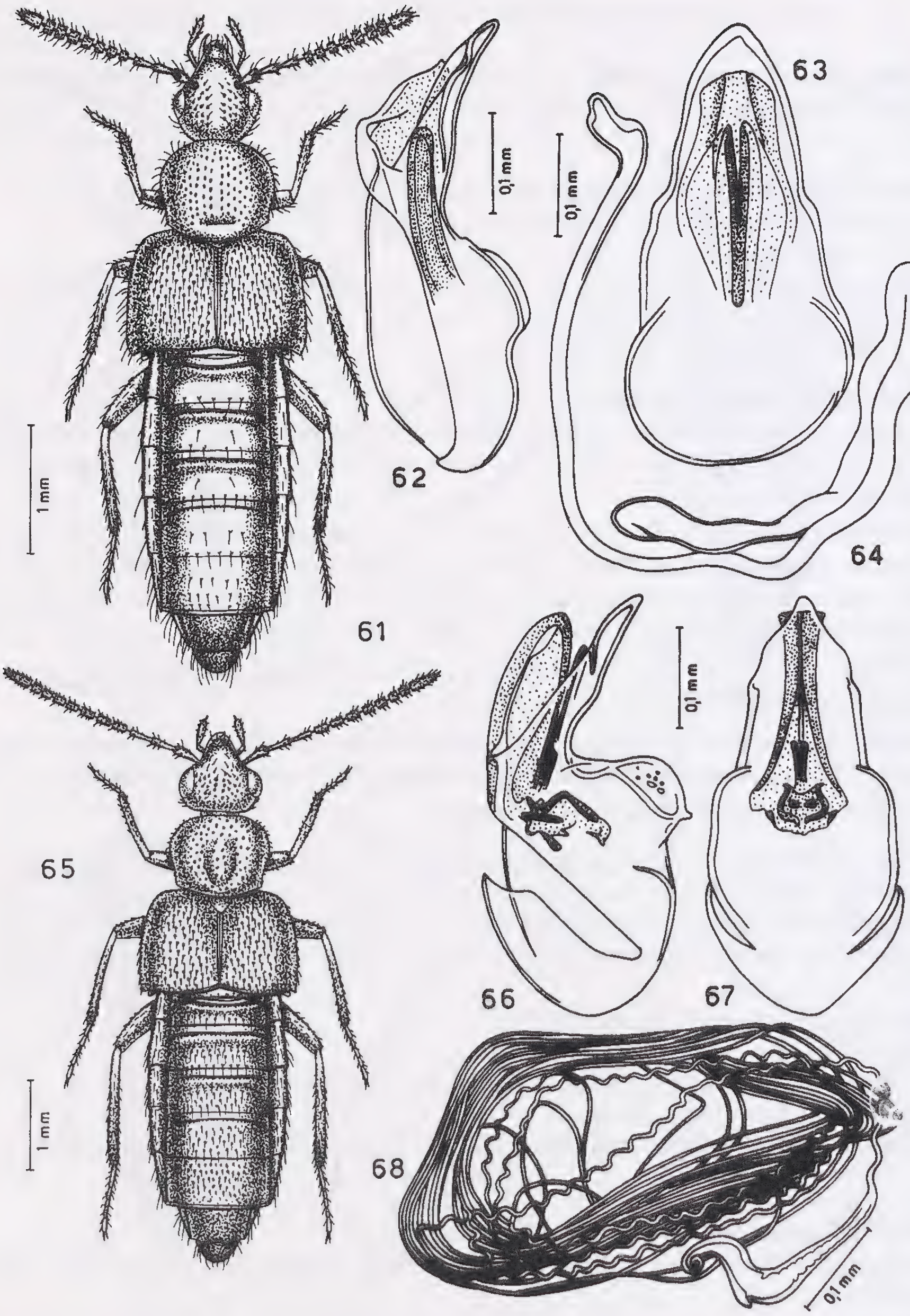
1 ♀, Namibia, Grootfontein: Askavolt-Farm, 20 Km E. Otavi, 18.II.1992, (Uhlig leg.) (MBE).

Specie cosmopolita.

Atheta (Oxypodera) dobensis n. sp. (figg. 59-60)

TIPO: Holotypus ♀, Namibia, Bushmanland: Klein Dobe, Tümpel-Ufer, 19-21.II.1992, (Uhlig leg., MBE).

DESCRIZIONE: Lungh. 2,4 mm. Corpo lucido e rossiccio con capo, elitre e 4° urite libero bruno-rossicci; antenne giallo-rossicce sfumate di rossiccio sporco verso l'apice; zampe giallo-rossicce. La microreticolazione della superficie del capo e del pronoto è svanita, quella delle elitre è distinta e quella dell'addome è assente. La punteggiatura del capo è distinta, assente solo sulla fascia longitudinale mediana. Tubercoletti salienti e fini



Figg. 61-68. Habitus, edeago in visione laterale e ventrale e spermateca. 61-64: *Pachorhopala namibiensis* n. sp.; 65-68: *Diplopleurus namibiorum* n. sp.

coprono il pronoto, tubercoletti distinti ed evidenti stanno sulla superficie delle elitre. Spermateca fig. 60.

COMPARAZIONI: L'habitus della nuova specie è simile a quello di *A.* (*Oxypodera*) *chyuluensis* Cameron, 1942, del Kenya e Tanzania (tipi esaminati), ma gli occhi nella nuova specie sono nettamente più ridotti e la spermateca non descrive un'ampia spira nella regione prossimale, né il bulbo distale della stessa è molto largo come in *A.* (*O.*) *chyuluensis*.

Atheta (*Tropatheta*) *oculata* Bernhauer, 1915

Atheta (s. str.) *oculata* Bernhauer, 1915: 184
Atheta (*Stethusa*) *oculata*: Pace, 1986: 87

1 ♂ e 1 ♀, Namibia, Naos Rehoboth, 9-15.III.1985, (H. Roer leg.); 1 ♀, Namibia, Kawango: Popa Falls, lux, 26.II-3.III.1992, (Uhlig leg.); 1 ♀, Namibia, Bushmanland, Klein Dobe, lux, 19-21.II.1992, (Uhlig leg.); 1 es., Namibia, Kavango: Mahang Game Reserve, 28.II.1992, (Uhlig leg.), comparati con i tipi (MBE, MT).

Specie già nota solo del Sudan e della Tanzania.

Alomacrotona remota Pace, 1986

Alomacrotona remota Pace, 1986: 103

1 ♀, Namibia, E. Caprivi, Mamili NP.; Liadura, Linyanti-Ufer, Gesiebe *Papyrus* ♀Binsen, 11.III.1992, (Uhlig leg.) (MBE).

Specie finora nota solo dell'Africa Orientale.

Tribù Myrmedoniini

Pachorhopala namibiensis n. sp. (figg. 61-64)

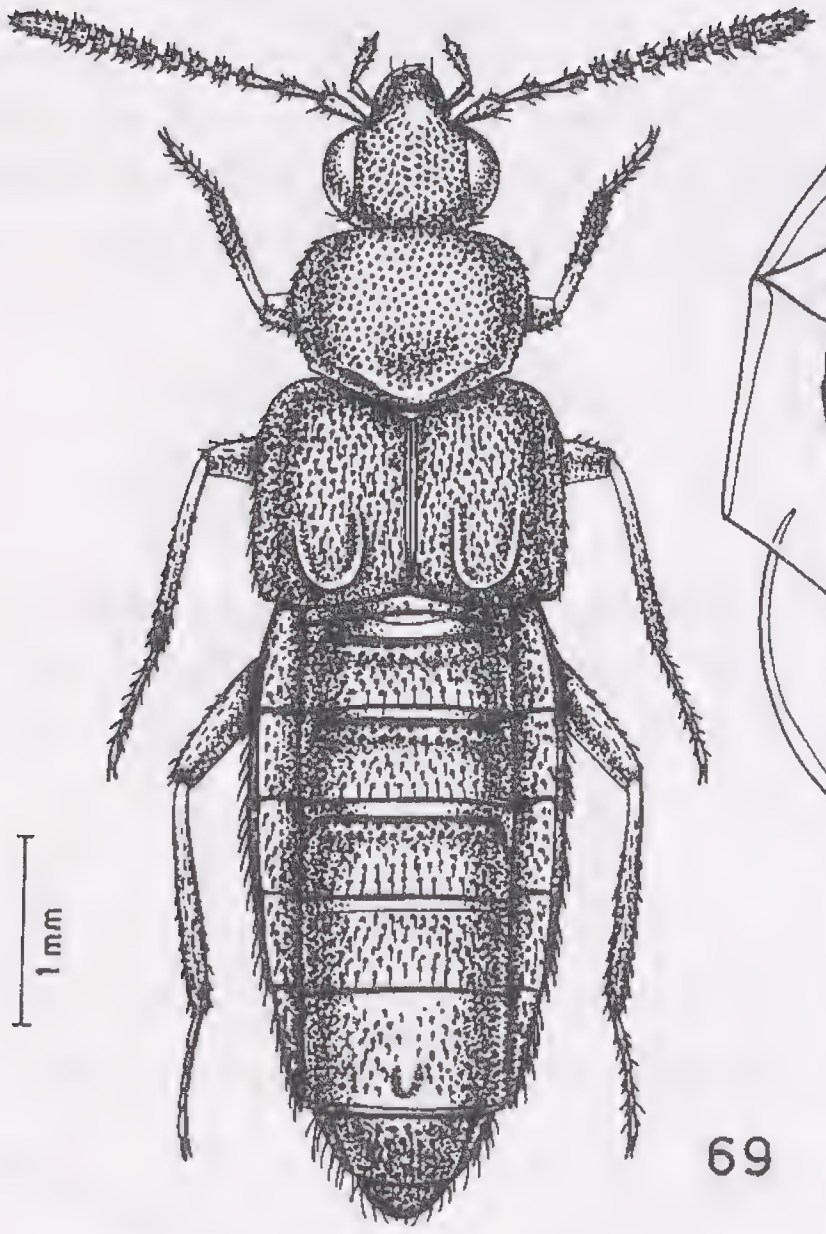
TIPI: Holotypus ♂, Kavango: Popa Falls, Kavango-Ufer, Ufervegetation gesiebt, 27.II.1992, (Uhlig leg.,: MBE). Paratypi: 3 ♀♀, stessa provenienza; 2 es., Namibia, East Caprivi, Katima Mulilo, Gesiebe Geschwemme Tümpelufer, 7.III.1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 4,8 mm. Corpo lucido e rossiccio, comprese le antenne e le zampe. Sull'intero corpo non vi è presenza di microreticolazione. La punteggiatura del capo, del pronoto e delle elitre è grossolana e netta, tranne ai lati dove è fine. La punteggiatura è assente sulla fascia longitudinale mediana del capo e del pronoto. Edeago figg. 62-63, spermateca fig. 64.

COMPARAZIONI: La nuova specie è simile a *P. fortepunctata* Bernhauer, 1929, dello Zaire (holotypus esaminato), per la robusta punteggiatura dell'avancorpo. Se ne distingue come segue:

1 - Taglia minore: 4,0 mm; pronoto appena trasverso (Rapporto larghezza/lunghezza pari a 1,08); 4° antennomero lungo quanto largo; punteggiatura delle elitre piu grossolana e più rada; bulbo distale della spermateca più prolungato all'apice; maschio sconosciuto. Zaire ..... *fortepunctata* Bernhauer

- Taglia maggiore: 4,8 mm; pronoto chiaramente trasverso (rapporto larghezza/lunghezza pari a 1,12); punteggiatura delle elitre meno grossolana e più fitta; bulbo distale della spermateca breve. Namibia ..... *namibiensis* n. sp.



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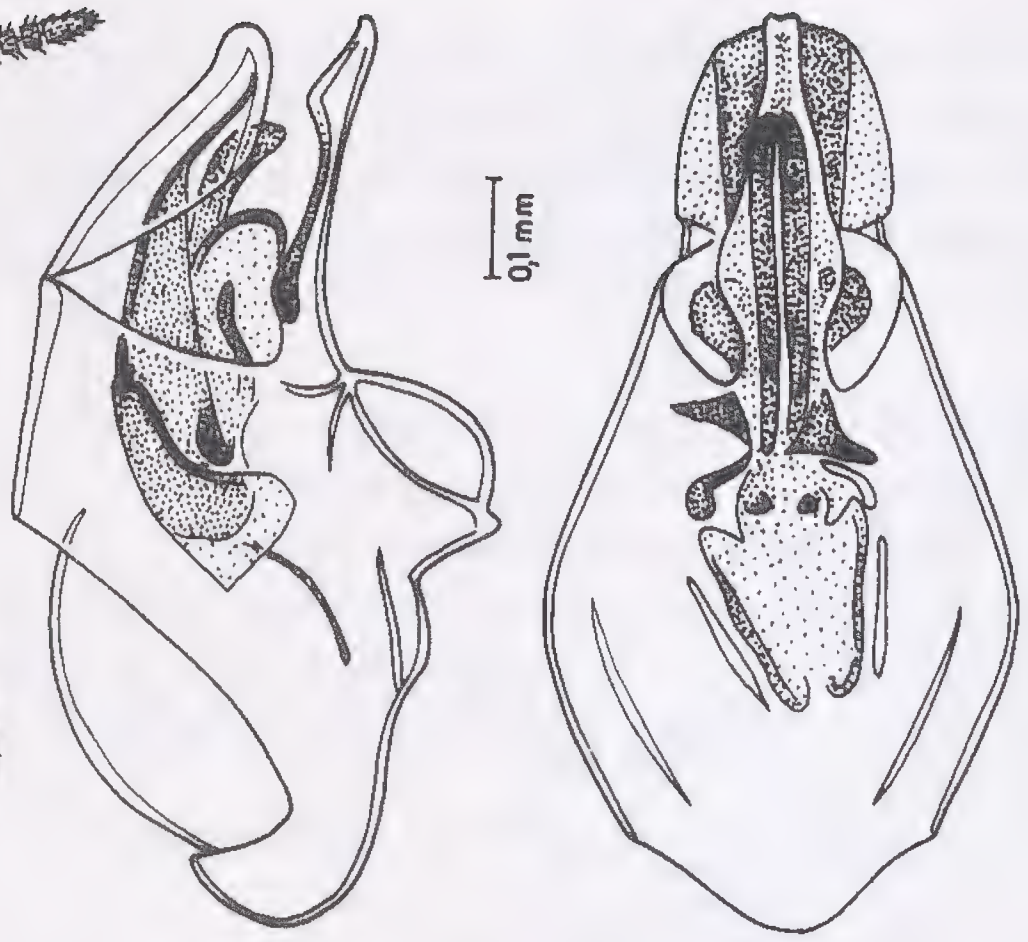

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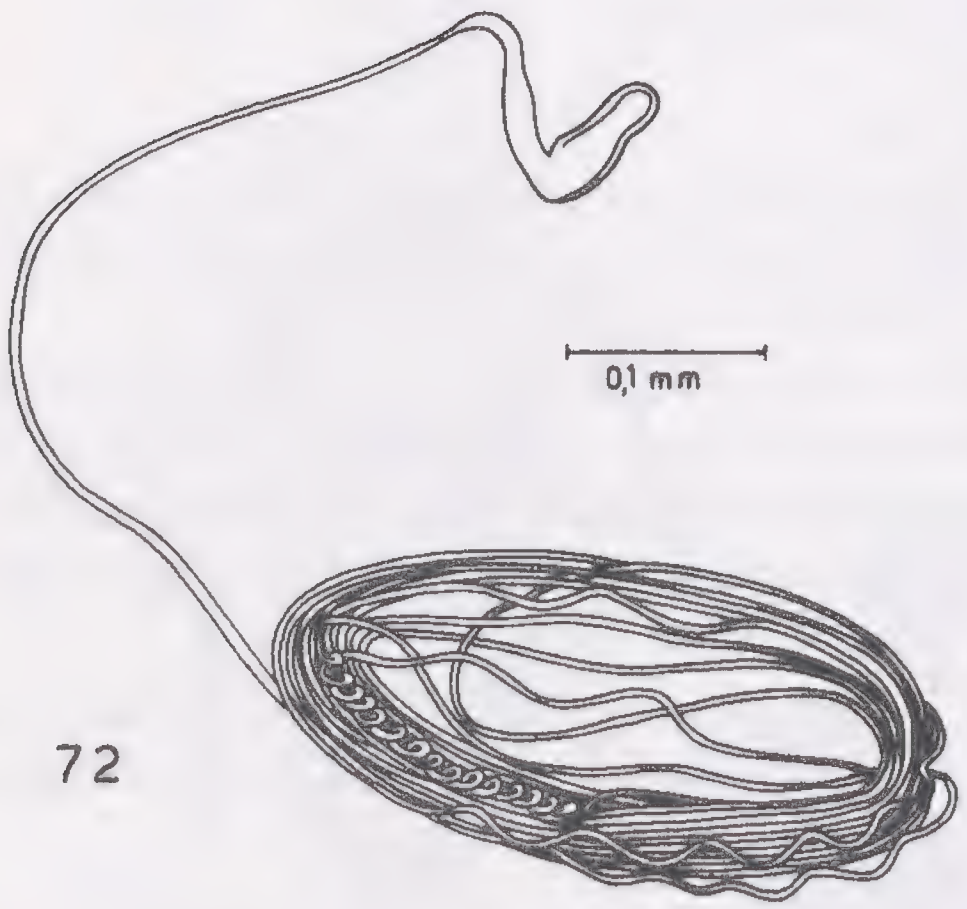

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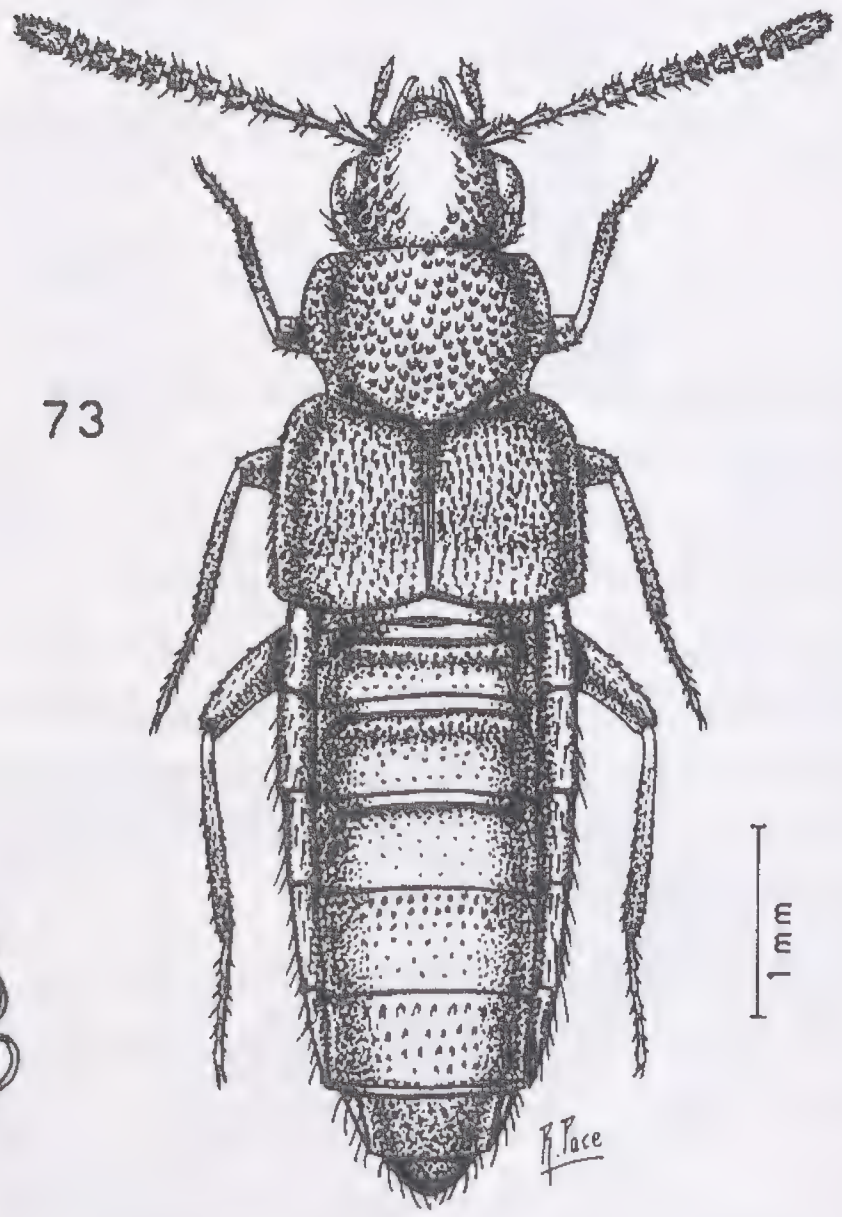

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Figg. 69-73. Habitus, edeago in visione laterale e ventrale e spermateca. 69-72: *Diplopleurus ulittera* n. sp.; 73: *Diplopleurus varius* n. sp.

Diplopleurus namibiorum n. sp. (figg. 65-68)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg., MBE). Paratypi: 8 es., stessa provenienza; 1 ♀, Namibia, Kavango: Popa Falls, lux, 26.II-3.III.1992, (Uhlig leg.); 1 ♂, D. O. Afrika, Mombo, lux, Inst. Amani (MBE, MT).

DESCRIZIONE: Lungh. 5,8 mm. Corpo lucido e giallo-rossiccio con capo, macchia suturale triangolare delle elitre, e uriti liberi 4°, 5° e 6°, bruni; antenne brune con i tre antennomeri basali gialli e l'undicesimo giallo-rossiccio; zampe gialle. Sulla superficie di tutto il corpo non è presente microreticolazione. La punteggiatura del capo è netta, profonda e assente sulla fascia longitudinale mediana; quella del pronoto è meno netta e profonda ed è diradata sul disco che mostra una larga e profonda concavità, delimitata posteriormente da una carena basale a ciascun lato. La punteggiatura delle elitre è accompagnata da tubercoletti salienti. La punteggiatura dell'addome è netta. Edeago figg. 66-67, spermateca fig. 68.

COMPARAZIONI: Si veda la chiave alla nota comparativa di *D. notabilis* n. sp.

Diplopleurus ulittera n. sp. (figg. 69-72)

TIPI: Holotypus ♀, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg., MBE). Paratypi: 8 ♂♂ e 15 ♀♀, stessa provenienza; 1 ♀, Namibia, Bushmanland: Klein Dobe, lux, 19-21.II.1992, (Uhlig leg.); 1 ♂, Namibia, Kavango: Popa Falls, lux, 26.II-3.III.1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh.6,0 mm. Corpo lucido e nero-bruno con margini laterali e anteriore del pronoto rossicci e con margini posteriori degli uriti liberi 1°, 2° e 5° e lati dell'addome bruno-rossicci; antenne brune con i due antennomeri basali e l'apice dell'undicesimo giallo-rossicci; zampe gialle. Assente è la microreticolazione su tutta la superficie del corpo. La punteggiatura del capo è netta, profonda e assente sulla fascia mediana, quella del pronoto è simile a quella del capo, ma presente su tutta la superficie, quella delle elitre è profonda e accompagnata da tubercoletti; su ciascuna elitra del maschio, sulla metà posteriore, si eleva una carena a forma U. La punteggiatura dell'addome è netta. Edeago figg. 70-71, spermateca fig. 72.

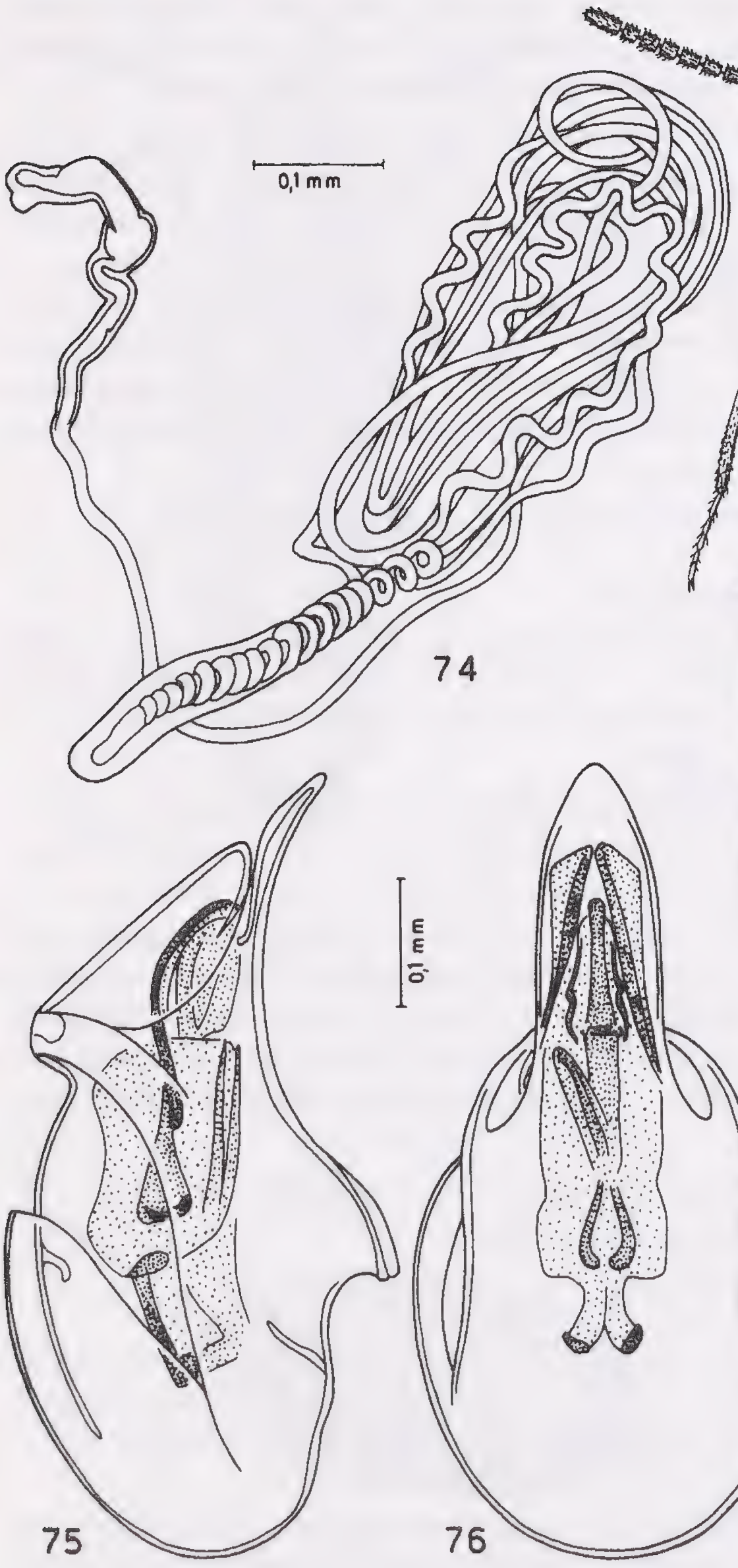
COMPARAZIONI: Si veda la chiave alla nota comparativa di *D. notabilis* n. sp.

ETIMOLOGIA: Per la forma di U della carena delle elitre.

Diplopleurus varius n. sp. (figg. 73-76)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 5-8.♂.1992, (Uhlig leg., MBE). Paratypi: 1 ♂ e 1 ♀, stessa provenienza; 1 ♂ e 2 ♀♀, Namibia, Kavango: Popa Falls, 26.II-3.III.1932, (Uhlig leg.); 1 ♂, Namibia, Bushmanland, lux, 19-21.II.1992, (Uhlig leg.); 1 ♂ e 1 ♀, Namibia, Osona bei Okahandjn, III-IV.1989, (J. Irish leg.) (MBE, MT).

DESCRIZIONE: Lungh. 5,8 mm. Corpo lucidissimo e nero pece con pronoto e quarto posteriore delle elitre giallo-rossicci e con margine posteriore degli uroterghi rossiccio; talvolta il pronoto è bruno e il margine posteriore delle elitre è per 1/5 giallo; in altri casi la fascia gialla posteriore delle elitre risale lateralmente fino agli omeri; antenne brune con i due antennomeri basali gialli; zampe gialle. Sull'intero corpo non vi è presenza di microreticolazione. Il capo è coperto di punteggiatura ombelicata a punti grandi e profondi per lo più assenti su una larga fascia mediana (vi sono casi in cui la fascia



Figg. 74-78. Spermateca, edeago in visione laterale e ventrale e habitus. 74-76: *Diplopleurus varius* n. sp.; 77-78: *Diplopleurus mimus* n. sp.

impunteggiata è meno larga). Il pronoto presenta la superficie coperta di tubercoli robusti, salienti e meno fitti sulla fascia mediana; pronoto con una larga depressione laterale. La punteggiatura delle elitre è netta, accompagnata da tubercoletti svaniti. I tre uroterghi basali mostrano una punteggiatura fine, il 4° libero punteggiatura allungata alla base e il 5° libero punteggiatura allungata netta. Spermateca fig. 74, edeago figg. 75-76.

COMPARAZIONI: Si veda la chiave alla nota comparativa data per *D. notabilis* n. sp.

Diplopleurus mimus n. sp. (figg. 77-78)

TIPI: Holotypus ♀, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg., MBE). Paratypi: 2 ♀♀, Namibia, Bushmanland: Klein Dobe, 19-21.II.1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 5,2 mm. Corpo lucido e bruno, con pronoto e margine posteriore degli uroterghi, giallo-rossicci e con elitre giallo-rossicce oscurate di bruno; antenne rossicce con i due antennomeri basali e la base del terzo giallo-rossicci; zampe rossicce con femori gialli. Assente è la microreticolazione della superficie del corpo. La punteggiatura del capo e delle elitre è netta, quella del pronoto è distinta accompagnata da tubercoletti. La base del 5° urite libero è largamente concava, nella femmina. Spermateca fig. 78.

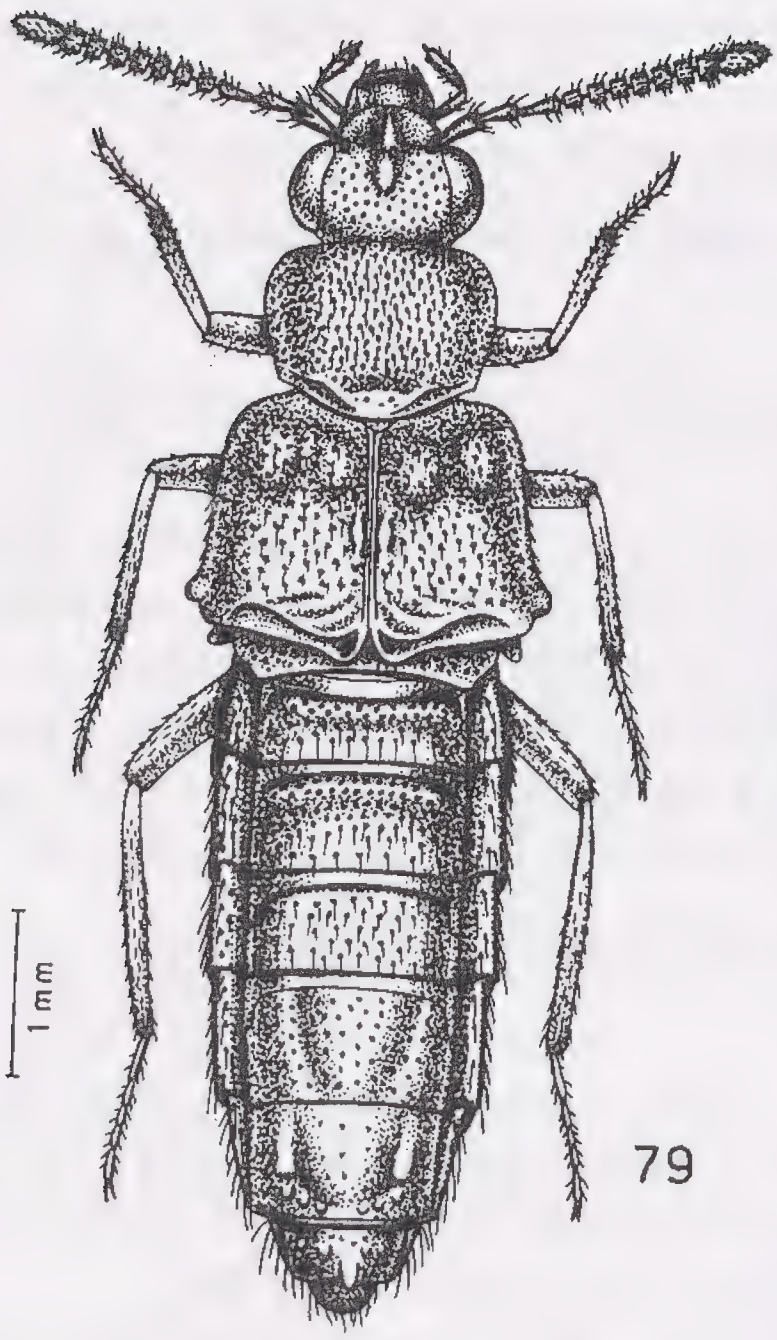
COMPARAZIONI: Si veda la chiave nella nota comparativa di *D. notabilis* n. sp.

Diplopleurus notabilis n. sp. (figg. 79-82)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III1992, (Uhlig leg., MBE). Paratypi: 3 ♂♂ e 10 ♀♀, stessa provenienza; 1 ♂ e 1♀, Namibia, Bushmanland: Klein Dobe, lux, 19-21.II.1992, (Uhlig leg.); 2 ♂♂, Namibia, Kavango, Popa Falls, 26.II-3.III.1992, (Uhlig leg.); 2 ♂♂ e 2 ♀♀, Brit. O. Afrika, Kibwezi, 12.XI.1905, (Scheffler leg., MBE) (MBE, MT).

DESCRIZIONE: Lungh. 7,3 mm. Corpo lucido e nero con pronoto e macchia rettangolare sutturale rossicci; antenne picee con i due antennomeri basali e la base del terzo giallo-rossicci; zampe rossicce con femori gialli. L'intera superficie del corpo è priva di microreticolazione. Il capo presenta punteggiatura ombelicata composta di punti grandi e profondi, assenti in avanti e a metà e una carena frontale assai saliente; parte discale profondamente impressa e con punteggiatura finissima. Il pronoto mostra una punteggiatura netta accompagnata da tubercoletti salienti, una depressione laterale e un profondo solco trasverso basale. Punteggiatura delle elitre confluente, ogni elitra con due bozze basali, delle pliche all'angolo posteriore interno e una incavatura impunteggiata al margine posteriore. L'addome è ben punteggiato; il 3° urotergo libero del maschio ha una debole impressione mediana, il 4° un'area piana trapezoidale mediana e il 5° una concavità mediana delimitata lateralmente da tubercoli molto salienti. Edeago figg. 81-82, spermateca fig. 80.

COMPARAZIONI: Il genere *Diploplurus* Bernhauer, 1915, era noto per la specie tipo *D. excavatus* Bernhauer, 1915 dell'Africa Orientale (esaminata) e per *D. ruwenzorensis* (Bernhauer, 1934) (**comb. n.**) ("olim" *Astilbus ruwenzorensis* Bernhauer, 1936: 247, *Drusilla ruwenzorensis*: Pace, 1986:109), *D. roridus* (Pace, 1986) (**comb. n.**) ("olim" *Drusilla rorida* Pace, 1986: 104) della Tanzania, *D. notatipennis* (Pace, 1986) (**comb. n.**) ("olim" *Drusilla notatipennis* Pace, 1986: 104), *D. puella* (Pace, 1986) (**comb. n.**) ("olim" *Drusilla puella* Pace, 1986: 104), tutte e tre della Tanzania, *D. gilvicollis* (Pace, 1985) (**comb. n.**) ("olim" *Zyras* (*Trachydonia*) *gilvicollis* Pace, 1985: 153), della Namibia.



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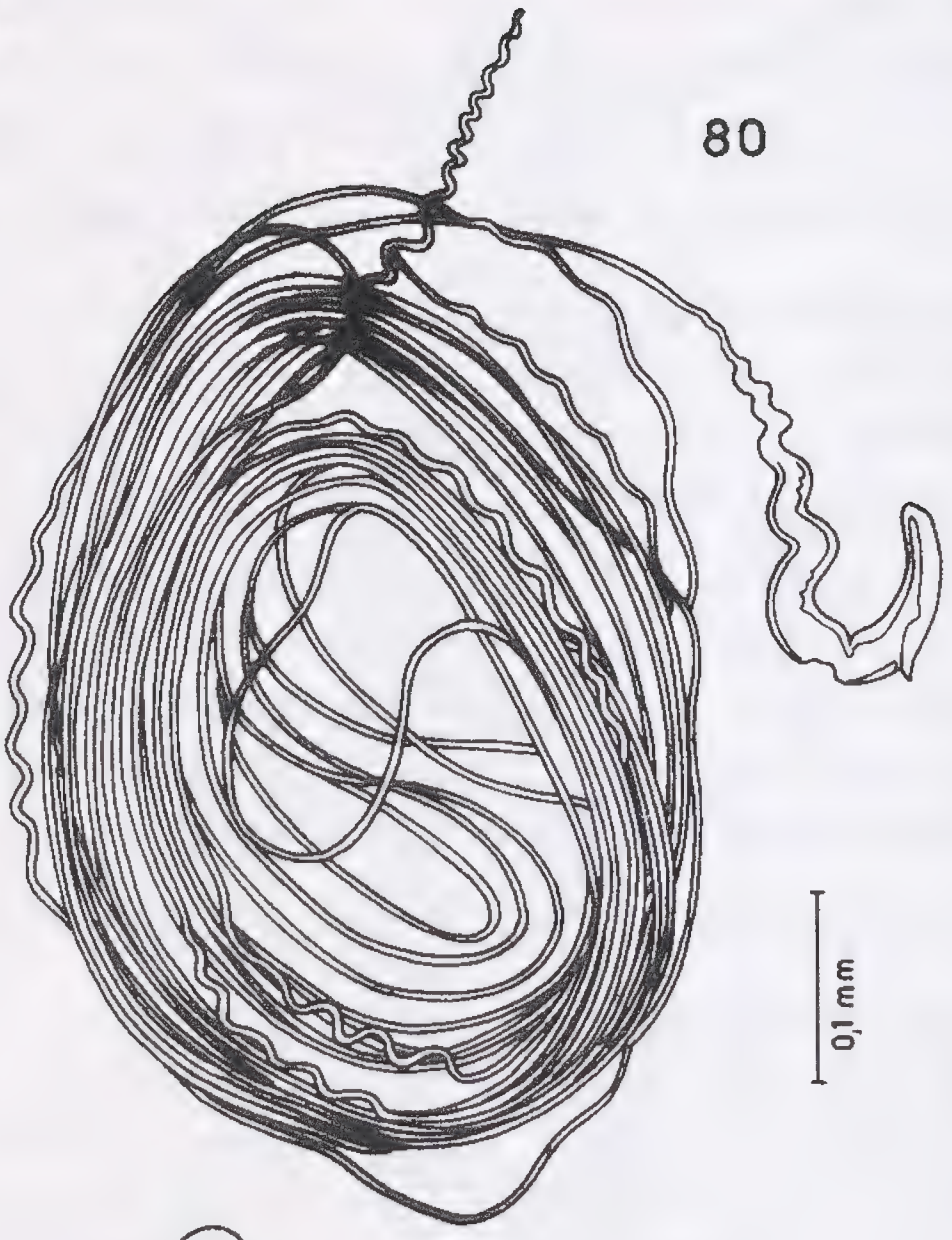

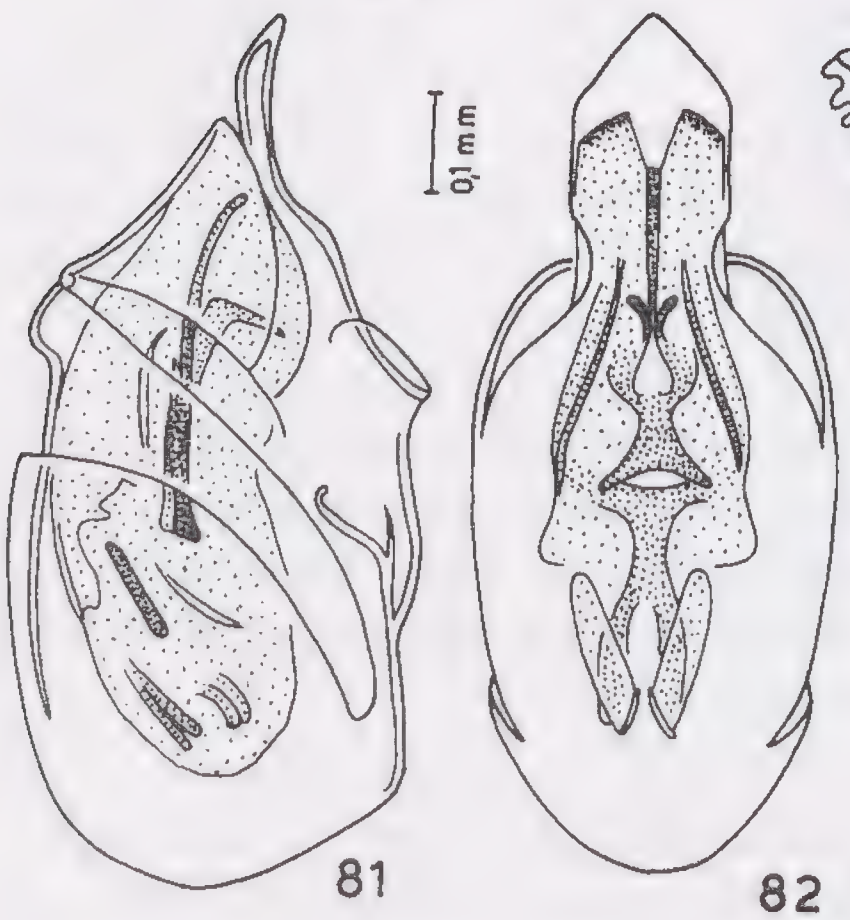

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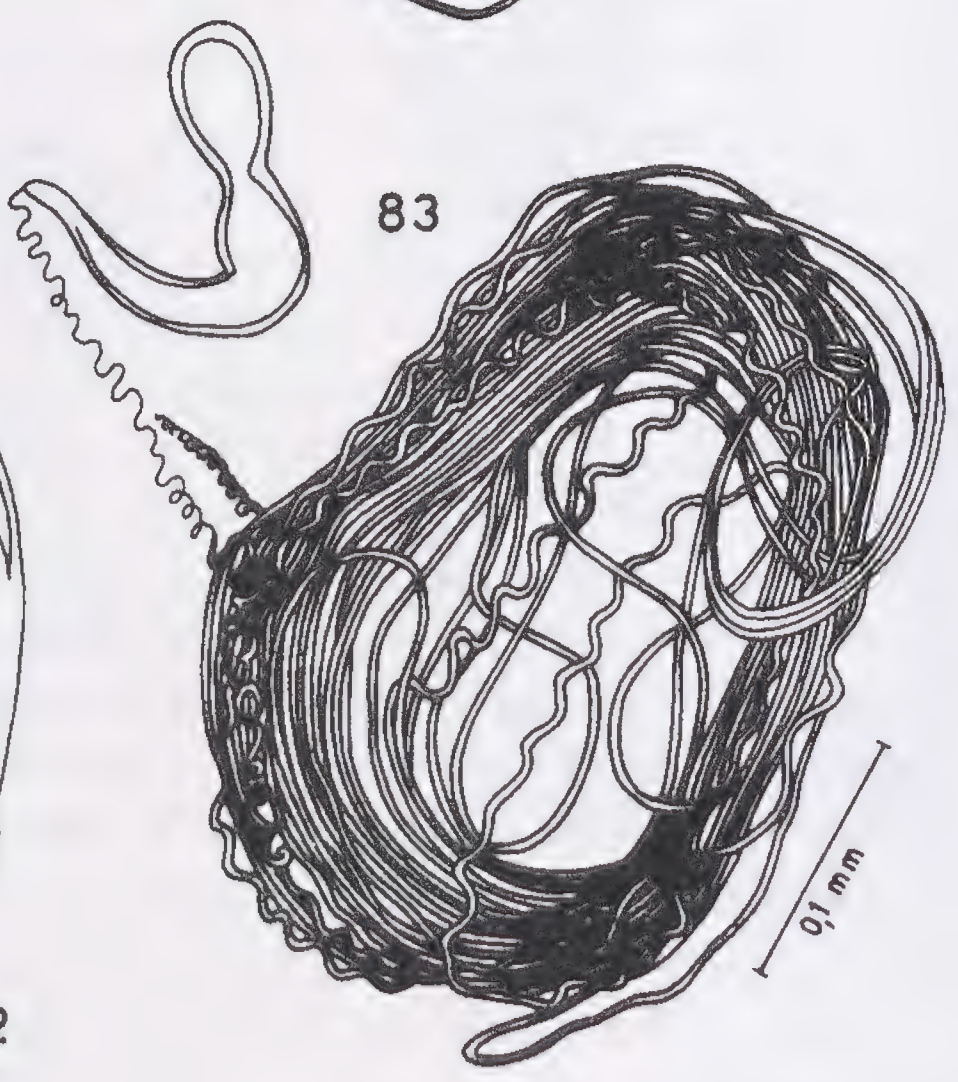


Figg. 79-83. Habitus, spermateca ed edeago in visione laterale e ventrale. 79-82: *Diplopleurus notabilis* n. sp.; 83: *Zyras* (*Grammodonia*) *serruliger* n. sp.

Le specie attualmente note per il genere *Diplopleurus* possono essere distinte in base ai caratteri dati nella seguente chiave:

1 - Zampe rossicce con femori gialli 2
- Zampe unicolori, rossicce o gialle 5
2 - Pronoto bruno con lati, base e area mediana, bruno-rossicci; punteggiatura del capo composta di punti enormi e profondi; sulle elitre è presente un'area priva di tubercoletti. Lungh. 4,8 mm. Tanzania ..... *notatipennis* (Pace)
- Pronoto uniformemente rossiccio 3
3 - Elitre nere, con macchia suturale rettangolare rossiccia; nel maschio elitre foggiate come da fig. 79. Lungh. 7,3 mm. Namibia ..... *notabilis* n. sp.
- Elitre uniformemente rossicce o giallo-rossicce 4
4 - Occhi ridotti, poco più lunghi delle tempie; pronoto con due bozze basali e area discale priva di punteggiatura; uroterghi liberi 1° e 2° distintamente punteggiati. Lungh. 5,1 mm. Ruwenzori ..... *ruwenzorensis* (Bernhauer)
- Occhi enormi; punteggiatura del pronoto uniformemente distribuita; uroterghi liberi 1° e 2° privi di punteggiatura: esistono alcuni punti fini. Lungh. 5,2 mm. Namibia .....*mimus* n. sp.
5 - Zampe rossicce 6
- Zampe gialle 9
6 - 4° antennomero più lungo che largo 7
- 4° antennomero nettamente trasverso 8
7 - Occhi lunghi quanto le tempie; lati del pronoto non sinuati davanti agli angoli posteriori; punteggiatura delle elitre composta di punti enormi e profondi; tubercoli assai salienti lungo la sutura. Lungh. 4,6 mm. Africa Orientale .....*excavatus* Bernhauer
- Occhi molto sviluppati; lati del pronoto sinuati davanti agli angoli posteriori; punteggiatura delle elitre fine, con tubercoletti uniformemente salienti. Lungh. 4,2 mm. Tanzania ..... *rorida* (Pace)
8 - Pronoto giallo-rossiccio chiaro; base del 5° urotergo libero con profonda punteggiatura allungata. Lungh. 5,5 mm. Namibia ..... *gilvicollis* (Pace)
- Pronoto rossiccio; base del 5° urotergo libero priva di punteggiatura. Lungh. 4,0 mm. Tanzania ..... *puella* (Pace)
9 - Occhi enormi; tempie estremamente ridotte; pronoto nero-bruno con lati e margine anteriore rossicci; apice dell'undicesimo antennomero giallo-rossiccio; elitre del maschio, ciascuna con un rilievo saliente a forma di U. Lungh. 6,0 mm. Namibia ..... *ulittera* n. sp.
- Occhi meno sviluppati, sicché le tempie sono sufficientemente lunghe; undicesimo antennomero o bruno o interamente giallo-rossiccio 10
10- 4° antennomero più lungo che largo; undicesimo antennomero giallo-rossiccio; pronoto poco trasverso; elitre giallo-rossicce con una fascia suturale triangolare e bruna. Lungh. 5,8 mm. Namibia ..... *namibiorum* n. sp.
- 4° antennomero lungo quanto largo; undicesimo antennomero bruno; pronoto molto trasverso; elitre nero pece con fascia marginale posteriore giallo-rossiccia, che può estendersi ai lati fino agli omeri. Lungh. 5,8 mm. Namibia..... *varius* n. sp.

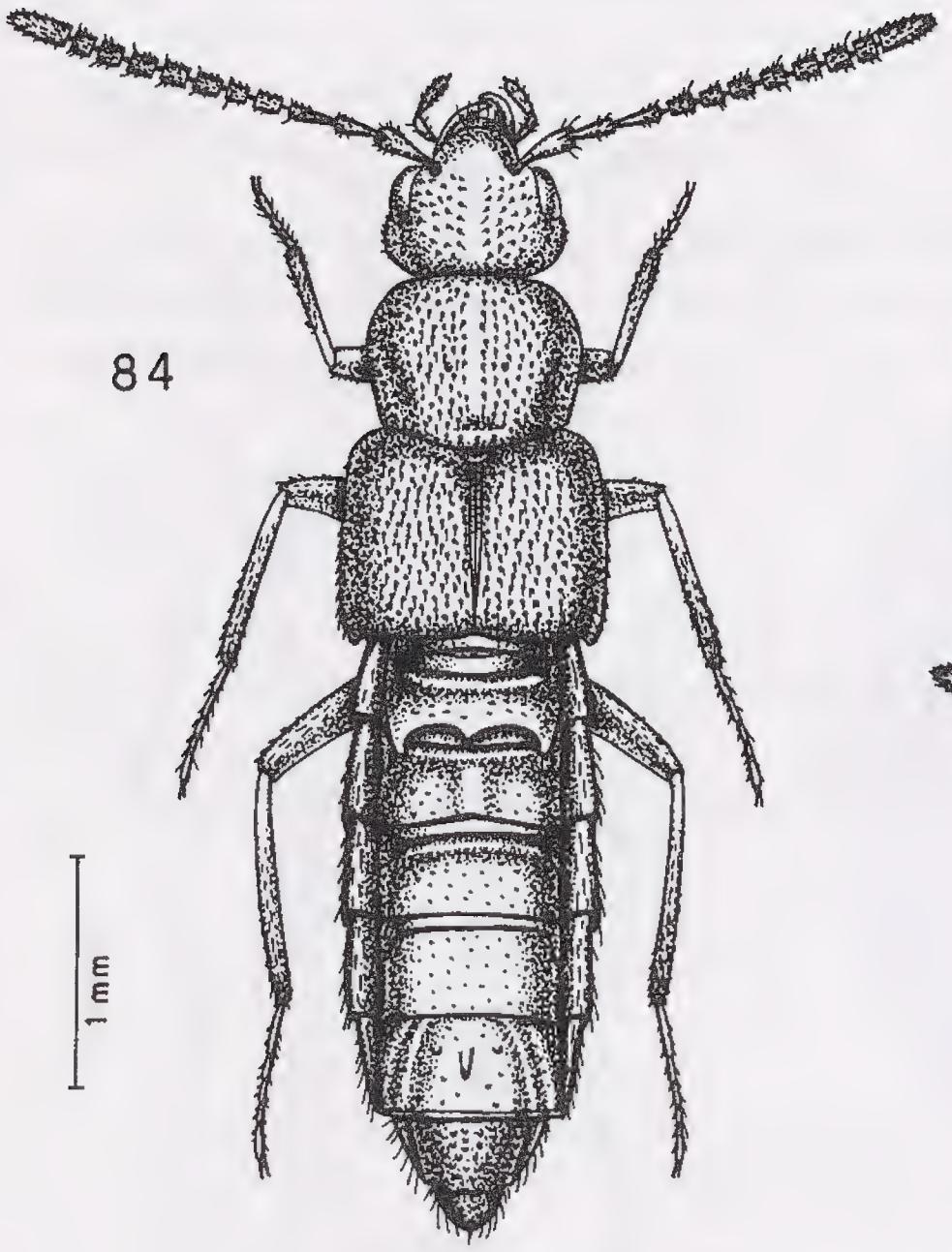
Stichodonia bisulcata (Bernhauer, 1915)

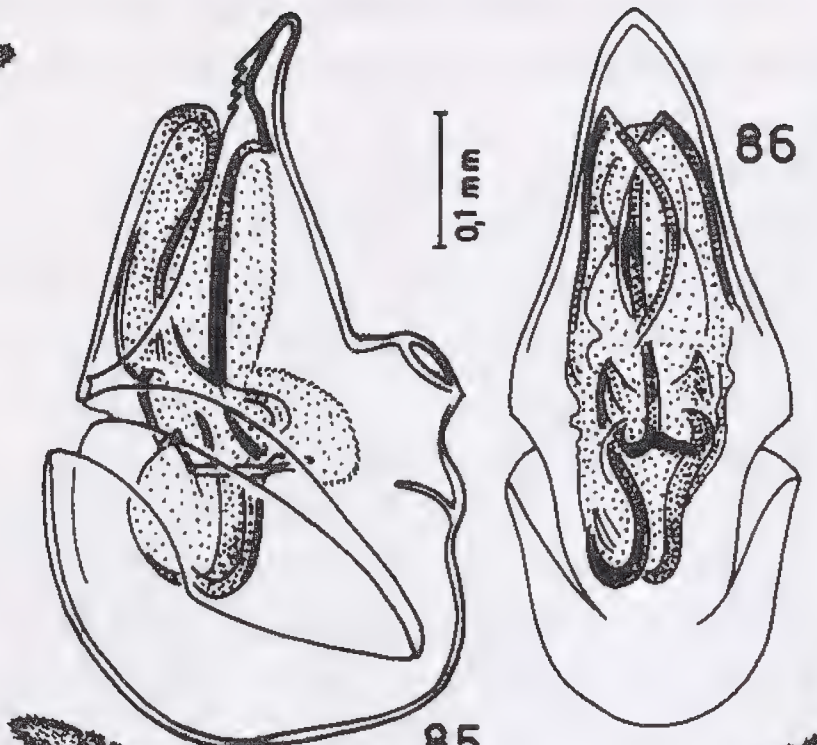
Zyras bisulcatus Bernhauer, 1915: 176

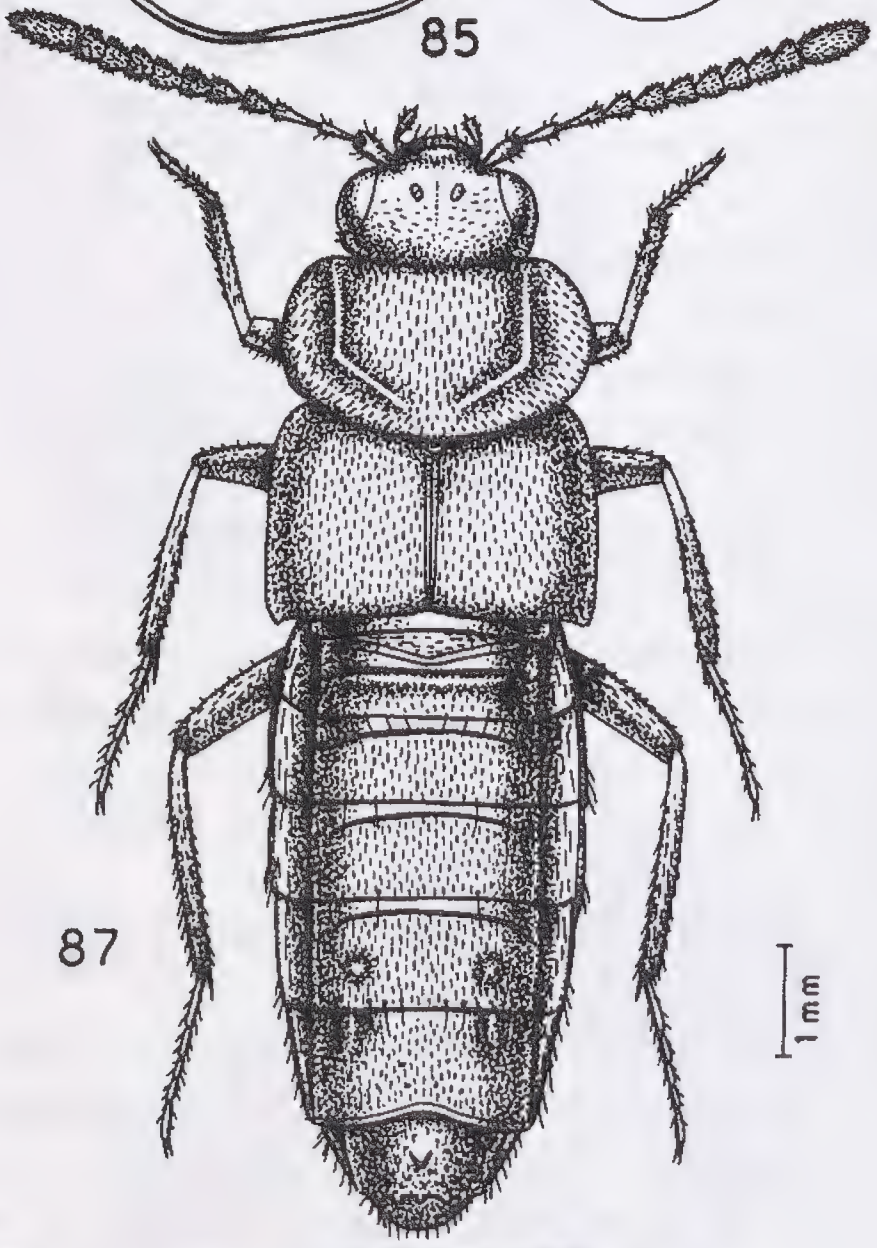
Zyras (*Stichodonia*) *bisulcatus*: Bernhauer, 1928: 20

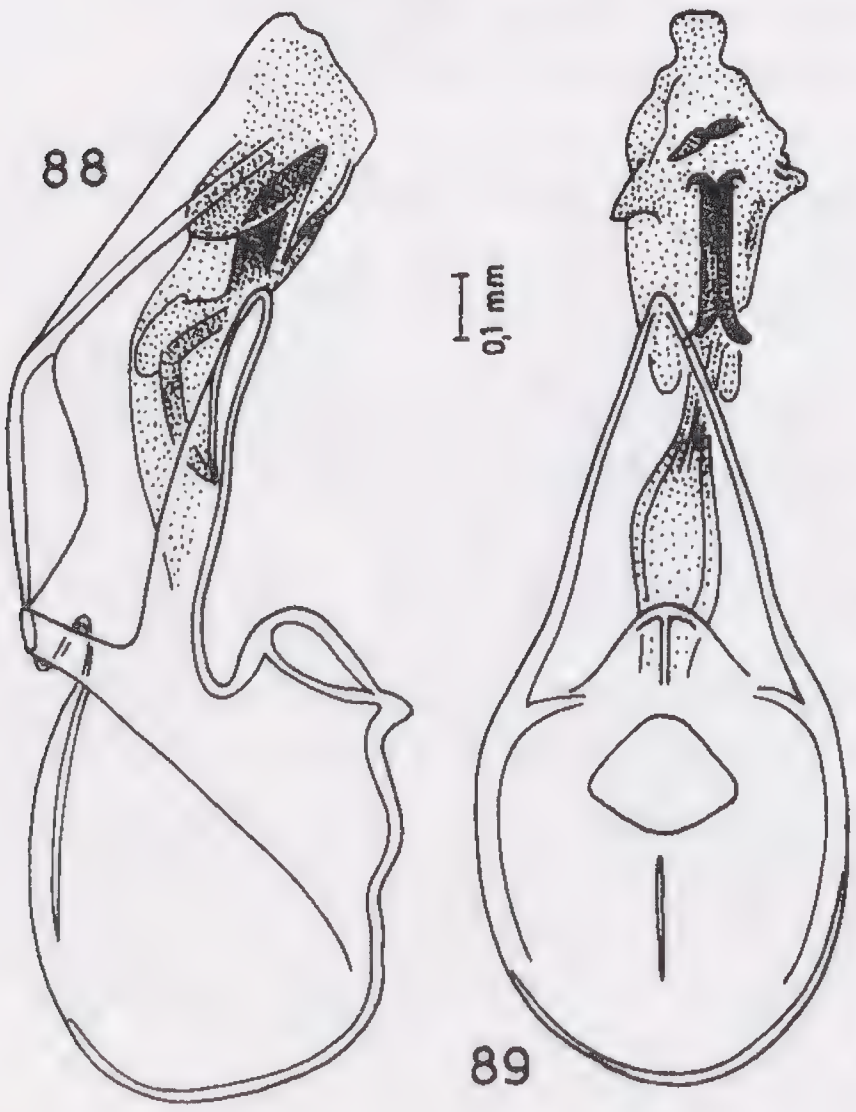
5 ♂♂ e 11 ♀♀, Namibia, Kavango: Mahango Game Reserve, lux, 2.III.1992, (Uhlig leg.); 1 ♂, Namibia, East Caprivi, Mudumu NP., Nakatwa, 8-13.III.1992, (Uhlig leg.) (MBE, MT).

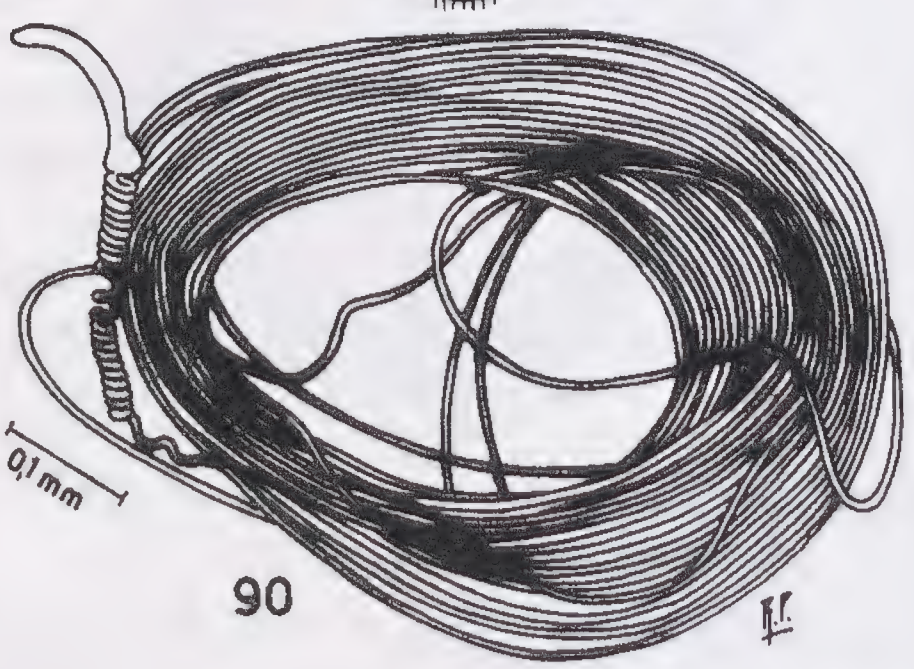
Specie già nota del Sudafrica.











Figg. 84-90. Habitus, edeago in visione laterale e ventrale e spermateca. 84-86: *Zyras* (*Grammodonia*) *serruliger* n. sp.; 87-90: *Zyras* (*Parophthalmonia*) *rusticus* n. sp.

Zyras (**Grammodonia**) **serruliger** n. sp. (figg. 83-86)

TIPI: Holotypus ♂, Namibia, Kavango: Popa Falls, lux, 26.II-3.III.1992, (Uhlig leg., MBE). Paratypi: 2 ♂♂ e 3 ♀♀, stessa provenienza; 1 ♂ e 3 ♀♀, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg.); 1 ♂, Namibia, East Caprivi, Mudumu NP., Nakatwa, lux, 8-13.III.1392, (Uhlig leg.)

DESCRIZIONE: Lungh. 4,8 mm. Corpo lucidissimo, privo di microreticolazione e giallo-rossiccio con capo e addome rossicci; antenne rossicce con i due antennomeri basali giallo-rossicci; zampe giallo-rossicce. La punteggiatura del capo è fine e assente sulla fascia longitudinale mediana e sulla fronte. Il pronoto presenta una depressione laterale più ampia all'indietro, punteggiatura distinta, assente sulla linea mediana, due punti discali evidenti e una fossetta mediana trasversa basale. La punteggiatura delle elitre è distinta. Il 1° urotergo libero presenta punteggiatura con punti trasversi, il 2° ha la parte longitudinale mediana lievemente saliente nel maschio e punteggiatura fine. Il 5° urotergo libero del maschio mostra un tubercolo mediano affilato e saliente. Spermateca fig. 83, edeago figg. 85-86.

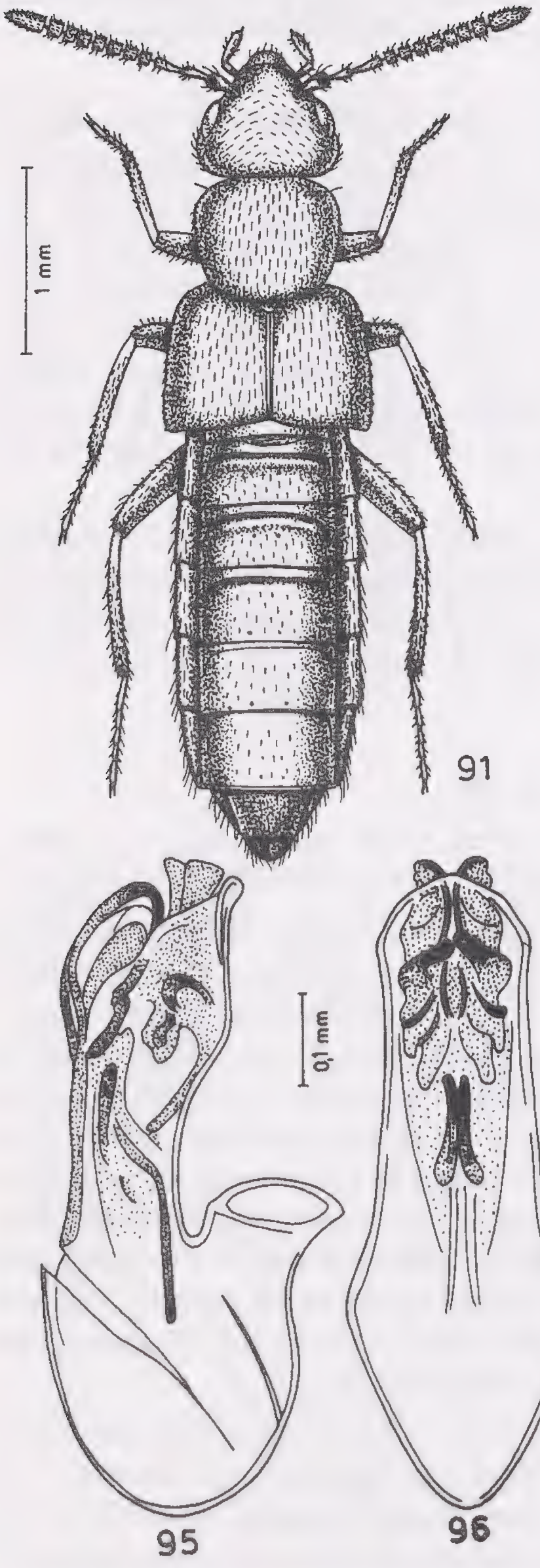
COMPARAZIONI: La nuova specie è simile a *Z.* (*G.*) *chloroticus* Fauvel, 1907, dell'Africa Orientale (Nairobi). Ne è distinta per avere l'addome rossiccio (e non rossiccio con uriti liberi 5° e 6° oscuri) e il 2° urite libero solamente con la parte mediana saliente nel maschio e non con margine sporgente a forma di lamina triangolare, ad apice incavato ad arco, come si osserva in *Z.* (*G.*) *chloroticus* .

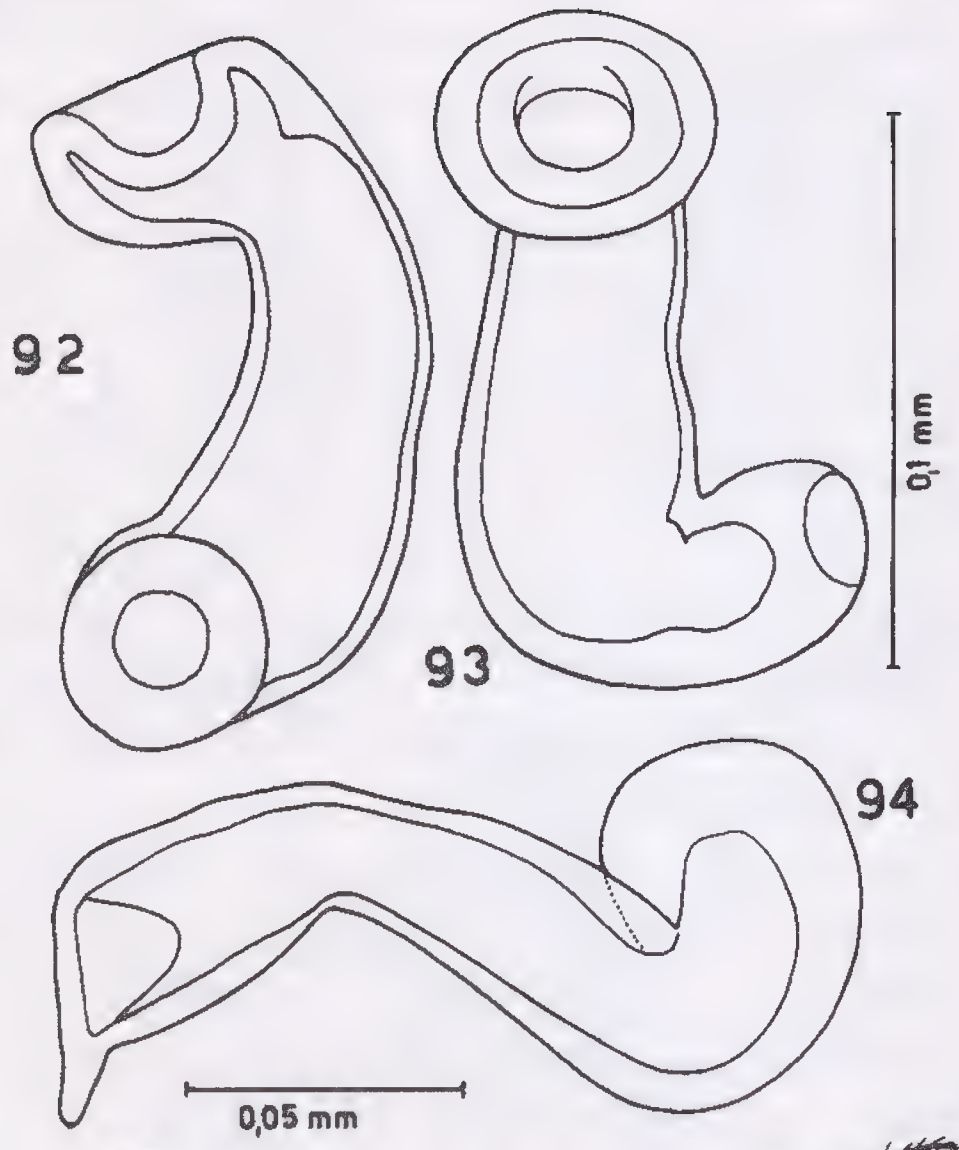
Zyras (**Parophthalmonia**) **rusticus** n. sp. (figg. 87-90)

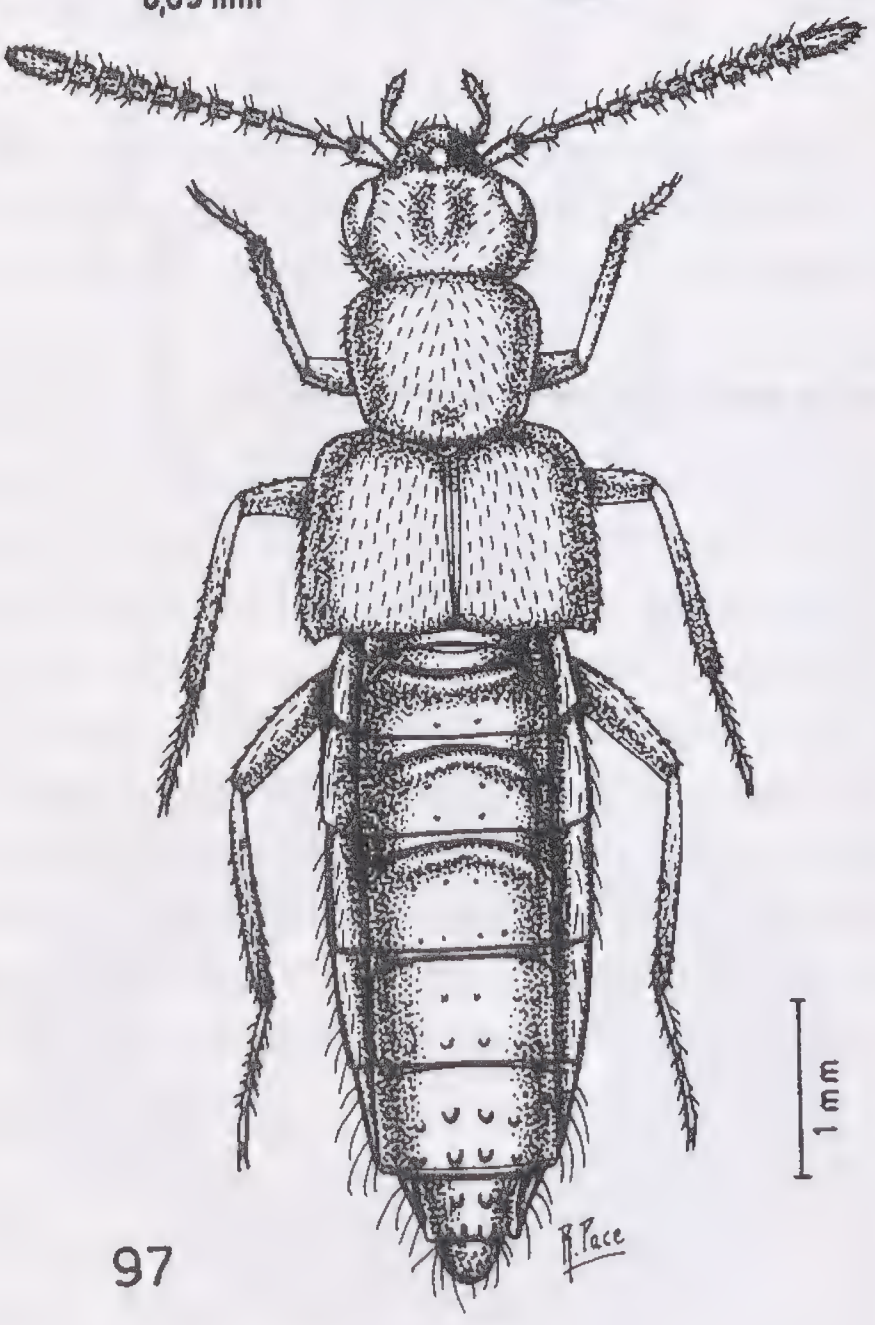
TIPI: Holotypus ♂, Namibia, Grootfontein, Otavi, lux, 18.II.1992, (Uhlig leg., MBE). Paratypus: 1 ♀, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg.) (MT).

DESCRIZIONE: Lungh. 9,3 mm. Avancorpo debolmente opaco, addome lucido. Capo nero-bruno, pronoto giallo-rossiccio, elitre giallo-rossiccio sporco, addome rossiccio; antenne giallo-rossicce con i due antennomeri basali gialli; zampe giallo-rossicce. L'intera superficie del corpo presenta microreticolazione netta. Il capo presenta superficie coperta di tubercoletti svaniti, due fossette ovali frontali coperte da un ciuffo di corte setole e contornate da maglie concentriche della reticolazione, e un fine solco mediano. Il poco convesso pronoto presenta superficie coperta di tubercoletti fitti e lievemente superficiali e un'ampia e profonda depressione laterale. I tubercoletti fittissimi della superficie delle elitre danno un aspetto rugoso alla superficie stessa. A ciascun lato del 4° urotergo libero del maschio è presente una fossetta rotonda. Il 5° urotergo libero nel maschio mostra a ciascun lato della base una debole fossetta obliqua. Il 6° urotergo del maschio ha un acuto tubercolo mediano. Edeago figg. 88-89, spermateca fig. 90.

COMPARAZIONI: La nuova specie è probabilmente simile a *Z.* (*P.*) *kristenseni* Bernhauer, 1915, dell'Africa Orientale e dello Zaire, per avere, il maschio, due crateri frontali (vedi Last, 1958, fig. 1). Se ne distingue per avere l'antennomero terminale molto più lungo del penultimo (e non poco più lungo come in *kristenseni*), per avere la depressione laterale del pronoto, lunga fino agli angoli anteriori del pronoto stesso (e non corta, non raggiungente gli angoli anteriori), per gli angoli posteriori del pronoto largamente arrotondati (e non dentati come in *kristenseni*).







Figg. 91-97. Habitus, spermateca ed edeago in visione laterale e ventrale. 91-93: *Zyras* (*Camonia*) *laxus* n. sp.; 94-97: *Zyras* (*Camonia*) *silus* n. sp.

Zyras (*Pycnodonia*) *microarmatus* Pace, 1996

Zyras (*Pycnodonia*) *microarmatus* Pace, 1996: 232

14 es., Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III. 1992, (Uhlig leg.) (MBE, MT).

Specie presente anche in Kenya.

Zyras (**Camonia**) **laxus** n. sp. (figg. 91-93)

TIPO: Holotypus ♀, Namibia, Kavango: Kaudom-Camp, lux, 22-25.II.1992, (Uhlig leg., MBE).

DESCRIZIONE: Lungh. 4,4 mm. Capo e pronoto opachi, elitre debolmente lucide, addome lucido. Corpo giallo-rossiccio con capo rossiccio; antenne giallo-rossicce con i due antennomeri basali gialli; zampe giallo-rossicce con femori gialli. L'esemplare è lievemente immaturo. La reticolazione del capo e del pronoto è a maglie regolari rotonde e nettissime, quella delle elitre è composta di maglie lievemente ellittiche e quella dell'addome è netta. La punteggiatura del capo e del pronoto è appena distinta, quella delle elitre è svanita e quella dell'addome è indistinta al di fuori dei due punti mediani. Spermateca figg. 92-93.

COMPARAZIONI: La nuova specie è affine sistematicamente a *Z. opticus* Cameron, 1947, dell'Africa Orientale, per la punteggiatura del pronoto e delle elitre appena distinta, ma gli occhi nella nuova specie sono molto ridotti (occupano quasi l'intero lato del capo in *opticus*) e le elitre appena più lunghe del pronoto (elitre di 1/3 piu lunghe in *opticus*).

Zyras (**Camonia**) **silus** n. sp. (figg. 94-97)

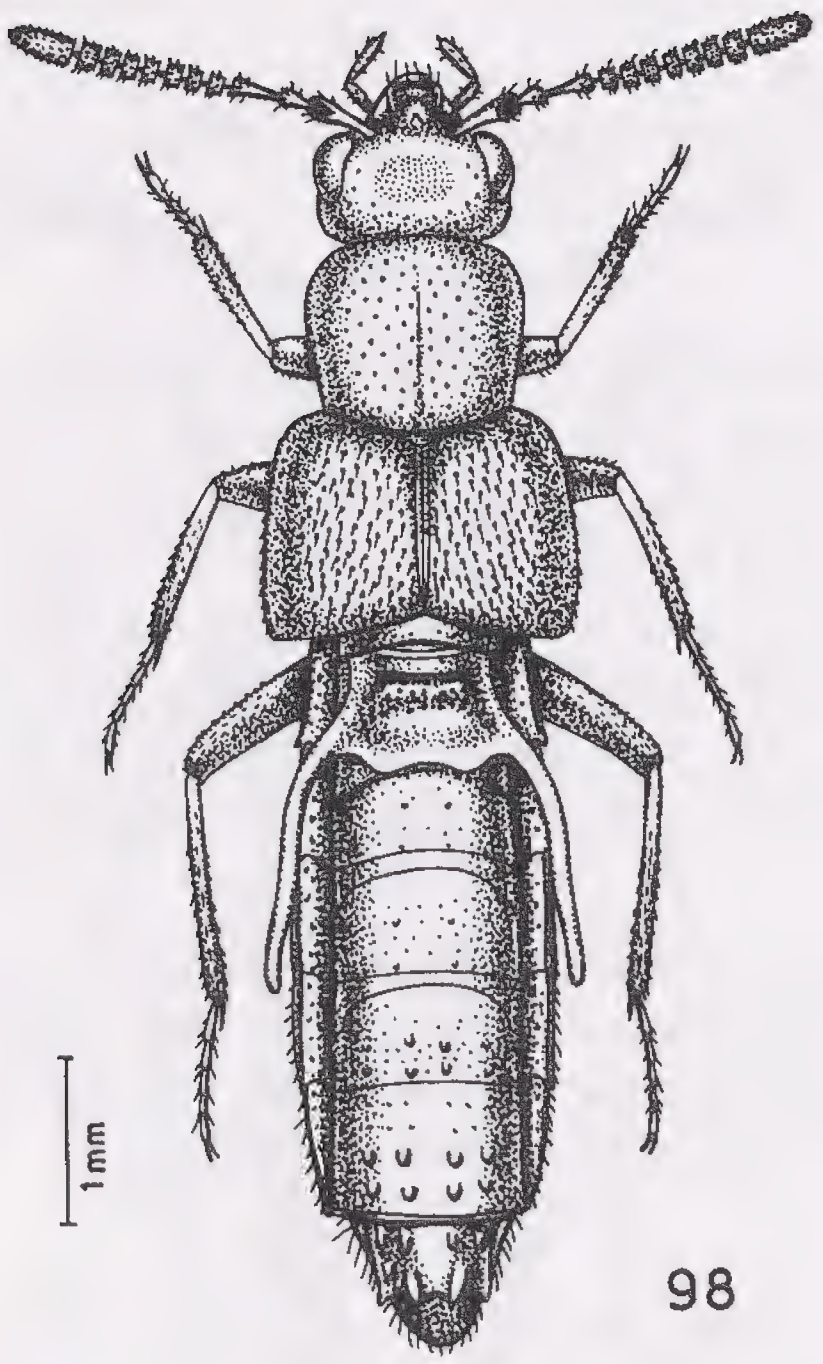
TIPI: Holotypus ♂, Namibia, Kavango: Popa Falls, lux, 26.II-3.III.1992, (Uhlig leg., MBE). Paratypi: 4 ♂♂ e 29 ♀♀, stessa provenienza; 1 ♂, Namibia, Grootfontein, Farm Klein Nesib, Anfang, IV.1989, (J. Irisch leg.) (MBE, MT).

DESCRIZIONE: Lungh. 6,6 mm. Corpo lucido con pronoto ed elitre opachi. Capo nero, pronoto ed elitre bruni, addome nero con i due uriti basali largamente marginati di giallo alla base, all'orlo posteriore e ai lati; antenne bruno-rossicce con i due antennomeri basali, la base del terzo e l'apice dell'undicesimo giallo-rossicci; zampe giallo-rossicce. La reticolazione del capo è svanita, quella del pronoto e delle elitre è a maglie regolari rotonde e nette e quella dell'addome è composta di maglie poligonali irregolari distinte. La punteggiatura del capo è fine e distinta, quella del pronoto e delle elitre è molto svanita. Spermateca fig. 84, edeago figg. 95-96.

COMPARAZIONI: La nuova specie è simile a *Z.* (*C.*) *disputandus* Last, 1963 della Rodesia, per la fine punteggiatura dell'avancorpo e per gli antennomeri 6 a 10 lunghi quanto larghi. Se ne distingue per avere gli occhi meno sviluppati (occhi di poco più di 2 volte la lunghezza delle tempie in *disputandus*), per la parte anteriore del capo con un tubercolo mediano (e non con clipeo a base in linea retta), per l'assenza di un solco mediano del pronoto (una traccia è osservabile in *Z. disputandus*). e per il 4° e il 5° urotergo libero del maschio piano e semplice (e non elevati e smarginati come in *disputandus*).

Zyras (**Camonia**) **uhligi** n. sp. (figg. 98-102)

TIPI: Holotypus ♂, Namibia, Bushmanland, Klein Dobe, lux, 19-21.II.1992, (Uhlig leg., MBE). Paratypi: 1 ♂, stessa provenienza; 8 ♂♂ e 4 ♀♀, Namibia, East Caprivi, Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg.); 4 ♂♂ e 17 ♀♀, East Caprivi, Mudumu NP., Nakatwa, 8-13.III.1992, (Uhlig leg.); 1 ♂, stessa provenienza, ma Buffalo Trails Camp, lux (MBE, MT).



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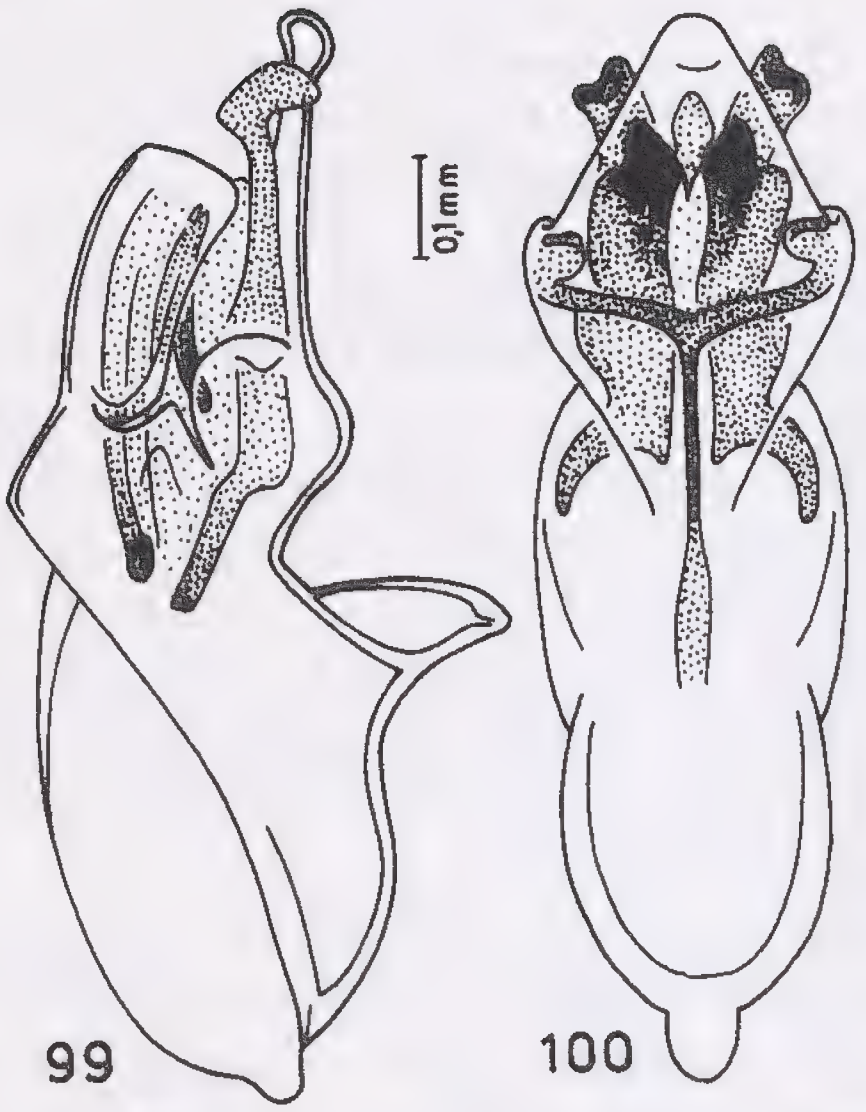

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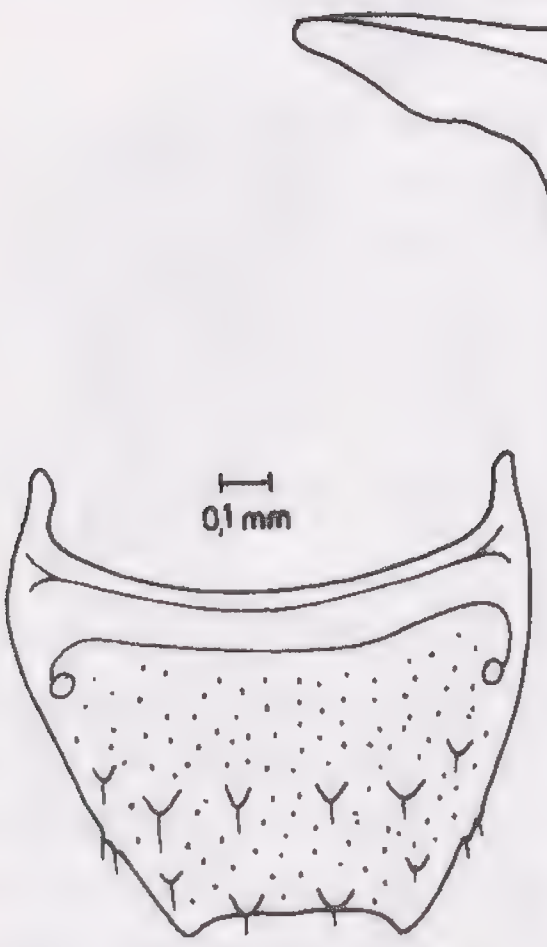

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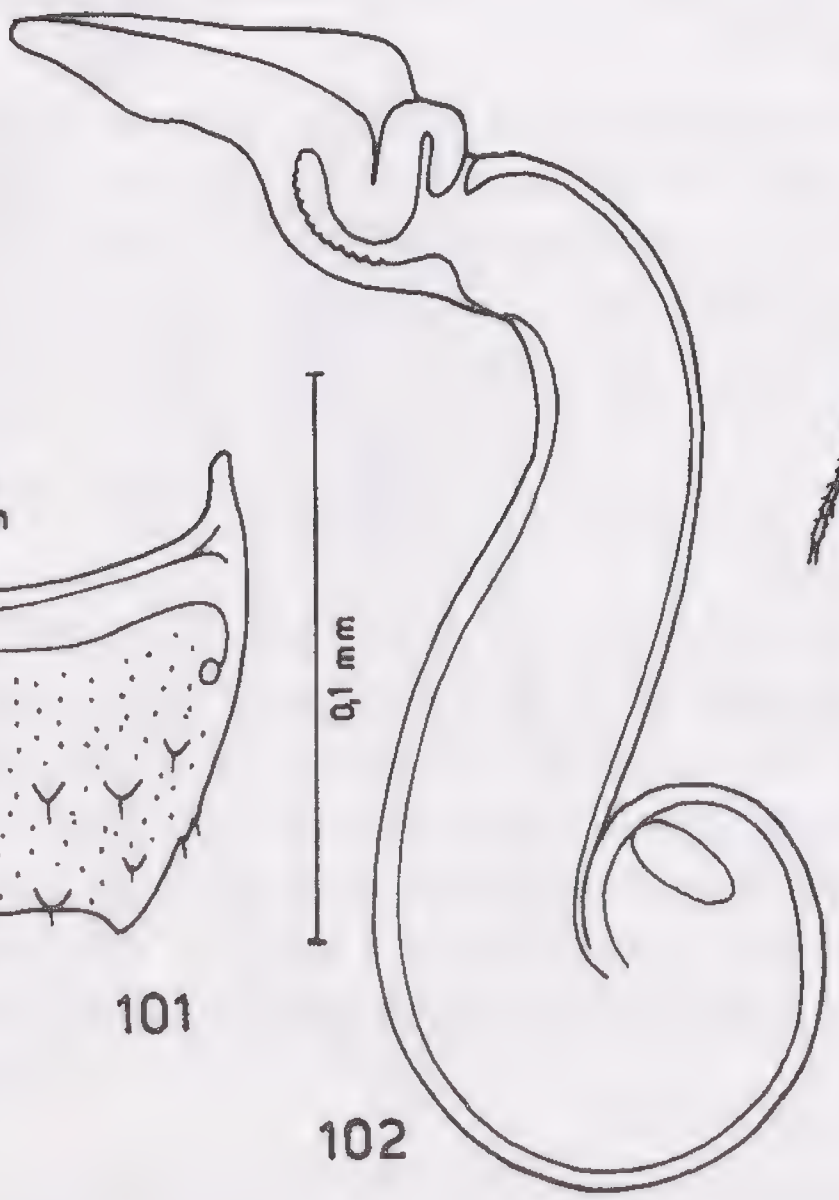

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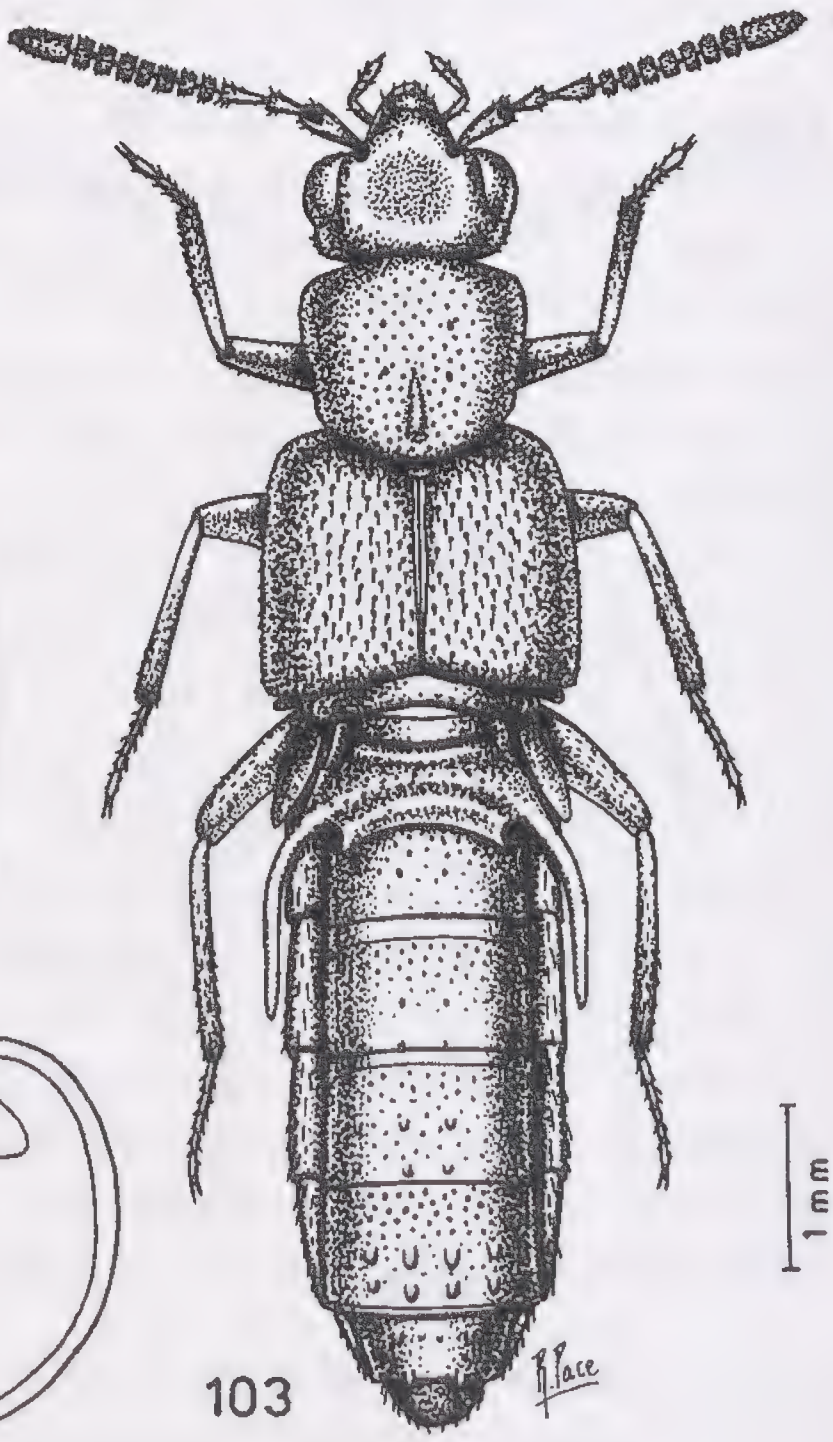

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Figg. 98-103. Habitus, edeago in visione laterale e ventrale, 6° urotergo libero del maschio e spermateca. 98-102: *Zyras* (*Camonia*) *uhligi* n. sp.; 103: *Zyras* (*Camonia*) *namibiensis* n. sp.

DESCRIZIONE: Lungh. 7,6 mm. Corpo lucido con capo opaco. Capo nero, pronoto, elitre e uriti liberi 1°, 2° e 6° giallo-rossicci, uriti liberi 3°, 4° e 5° nero-bruni con margine posteriore rossiccio; antenne brune con i tre antennomeri basali e l'undicesimo giallo-rossicci; zampe rossicce con femori giallo-rossicci. La reticolazione del disco del capo è vigorosa, quella del resto della superficie del capo è svanita. La reticolazione del pronoto è distinta, ma netta in avanti, queIla delle elitre è ben visibile, quella del 1° urotergo libero è netta, quella degli uroterghi liberi 2° a 4° è distinta e quella del 5° urotergo libero è svanita. La femmina ha il disco del capo debolmente reticolato. I prolungamenti degli angoli del 1° urotergo libero del maschio, in visione laterale sono appuntiti all'estremità distale. La punteggiatura del capo è superficiale e quella del pronoto e delle elitre è netta. Edeago figg. 99-100, 6° urotergo libero del maschio fig. 101, spermateca fig. 102.

COMPARAZIONI: La nuova specie è simile a *Z.* (*C.*) *depressicollis* Bernhauer, 1930, dello Zaire, ma ne è distinta per il capo nettamente più stretto del pronoto (e non appena piu stretto come in *depressicollis*), per avere la maggiore larghezza del pronoto davanti la metà (e non a metà come in *Z. depressicollis*), per i prolungamenti del 1° urotergo libero del maschio, molto sviluppati (e non cortissimi come in *depressicollis*) e per l'addome reticolato, anche se superficialmente (privo di reticolazione in *depressicollis*).

Zyras (**Camonia**) **namibiensis** n. sp. (figg. 103-106)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg., MBE). Paratypi: 78 ♂♂ e 102 ♀♀, stessa provenienza (MBE, MT).

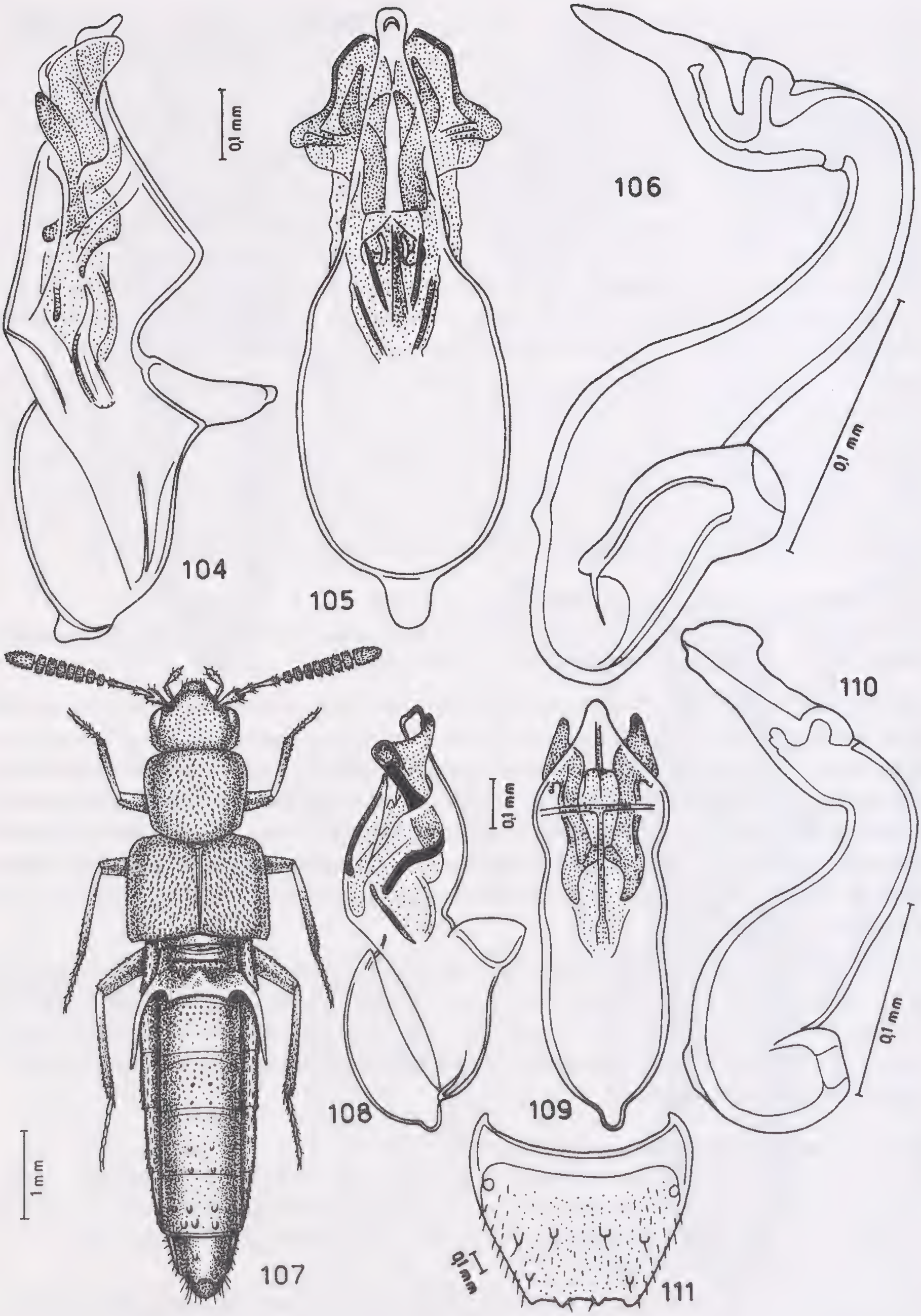
DESCRIZIONE: Lungh. 8,0 mm. Corpo lucido con disco del capo opaco. Capo nero, pronoto ed elitre giallo-rossicci; addome bruno con 1° urotergo libero, tranne i prolungamenti degli angoli posteriori, e margine posteriore degli uroterghi, rossicci; antenne brune con i due antennomeri basali e l'undicesimo rossicci; zampe rossicce con femori giallo-rossicci. I prolungamenti degli angoli posteriori del 1° urotergo libero del maschio sono molto variabili in lunghezza: dalla forma di spine corte con lamina mediana appena distinta a quella di spine arcuate più lunghe, con lamina intermedia distinta. Edeago figg. 104-105, spermateca fig. 106.

COMPARAZIONI: La nuova specie ha alcuni caratteri in comune con *Z.* (*C.*) *fundatus* Last, 1963, dello Zaire. Se ne distingue per avere il capo del maschio non profondamente depresso, le elitre giallo-rossicce (e non elitre con i 2/3 posteriori di colore bruno-rossiccio scuro) e il disco del capo nettamente reticolato (e non debolmente e finemente microsculturato come in *fundatus*).

Zyras (**Camonia**) **ambiguus** n. sp. (figg. 107-111)

TIPI: Holotypus ♂, Namibia, Bushmanland: Klein Dobe, lux, 19-21.II.1992, (Uhlig leg., MBE). Paratypi: 30 ♂♂ e 15 ♀♀, stessa provenienza; 1 ♀, Namibia; Kavango, East Caprivi, Game Park, Buschsavanne, 1.VI.1992, (Uhlig leg.); 1 ♂, Namibia, East Caprivi, Muduma NP., Nakatwa, 8-13.III.1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 6,4 mm. Corpo lucido. Capo nero, pronoto ed elitre giallo-rossicci, addome bruno con margine posteriore degli uroterghi rossiccio; antenne brune con i due antennomeri basali e l'undicesimo rossicci; zampe rossicce. La reticolazione del capo è



Figg. 104-111. Edeago in visione laterale e ventrale, spermateca, habitus e 6° urotergo libero del maschio. 104-106: *Zyras* (*Camonia*) *namibiensis* n. sp.; 107-111: *Zyras* (*Camonia*) *ambiguus* n. sp.

netta e regolare sul disco e svanita ai lati, quella del pronoto, delle elitre e dell'addome è distinta. La punteggiatura è netta su tutto il corpo. Edeago figg. 108-109, spermateca fig. 110, 6° urotergo libero del maschio fig. 111.

COMPARAZIONI: La nuova specie è simile a *Z.* (*C.*) *fundatus* Last, 1963, dello Zaire, per avere una netta reticolazione del disco del capo; se ne distingue per il disco del capo debolmente reticolato, per la punteggiatura piuttosto fitta (punteggiatura molto sparsa in *fundatus*), per l'undicesimo antennomero lungo quanto i tre precedenti antennomeri insieme (e non di poco più lungo dei due precedenti antennomeri insieme) e per il 1° urotergo libero del maschio con un rilievo triangolare mediano, assente in *fundatus*.

Zyras (**Camonia**) **sericatus** n. sp. (figg.112 - 115)

TIPI: Holotypus ♂, Namibia, Bushmanland: Klein Dobe, lux, 19-21.III.1992, (Uhlig leg., MBE). Paratypi: 3 ♂♂ e 3 ♀♀, stessa provenienza (MBE, MT).

DESCRIZIONE: Lungh. 6,6 mm. Capo e pronoto opachi, resto del corpo lucido. Capo nero, pronoto e i due uriti basali giallo-rossicci; elitre giallo-rossicce con una macchia triangolare bruna posteriore, uriti liberi 3° e 4° neri, 5° e 6° rossicci; antenne rossicce con i due antennomeri basali e l'undicesimo giallo-rossicci; zampe giallo-rossicce. Il capo della femmina è meno vigorosamente reticolato e la macchia nera posteriore delle elitre può essere più estesa in avanti. La reticolazione del disco del capo del maschio è vigorosa, ai lati e dietro è distinta; quella del pronoto è netta, quella delle elitre è a maglie oblique distinte e quella dell'addome è a maglie trasverse distinte. La punteggiatura del pronoto e delle elitre è distinta. Il pronoto presenta un fine solco mediano, superficiale in avanti. Edeago figg. 113-114, spermateca fig. 115.

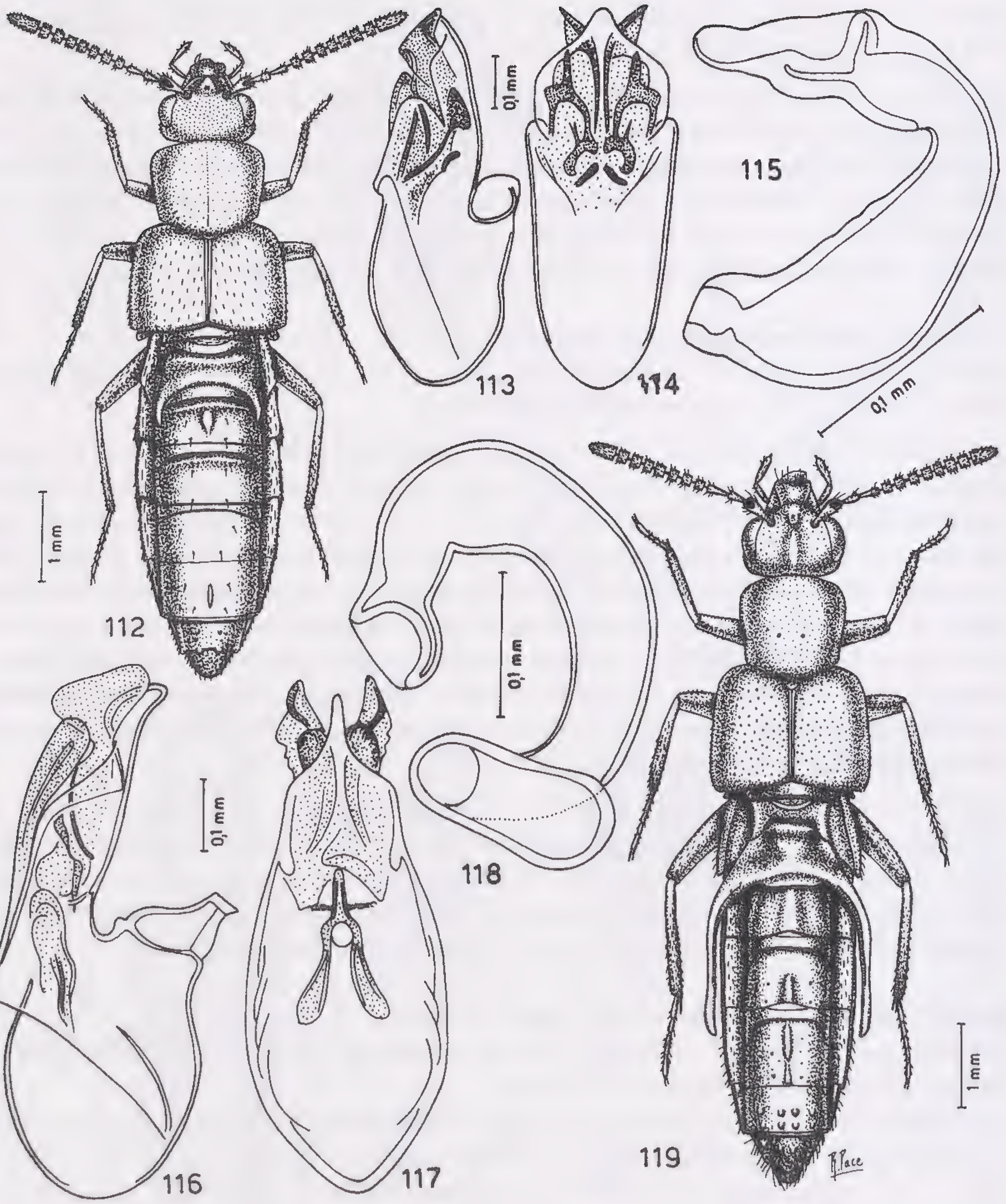
COMPARAZIONI: La nuova specie è simile a *Z.* (*C.*) *aridus* Last, 1963, dello Zaire. Se ne distingue per avere una vigorosa reticolazione sul capo del maschio (reticolazione molto debole e fine in *aridus*), per la presenza di un fine solco mediano del pronoto (assente in *aridus*), per le elitre lunghe quanto il pronoto (elitre più lunghe del pronoto in *aridus*) e per le appendici laterali del 1° urotergo libero del maschio corte (lunghe in *aridus*).

Zyras (**Camonia**) **bipunctatus** n. sp. (figg. 116-119)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg , MBE). Paratypi: 7 ♀♀, stessa provenienza (MBE, MT).

DESCRIZIONE: Lungh. 8,3 mm. Capo e pronoto debolmente opachi, resto del corpo lucido. Corpo giallo-rossiccio con capo nero e con addome rossiccio con il 4° urite libero, tranne i lati, bruno; antenne rossicce con i tre antennomeri basali e l'undicesimo giallo-rossicci; zampe rossicce con femori giallo-rossicci. La reticolazione dell'avancorpo è netta, regolare ed estesa su tutta la superficie, anche del capo, quella del 1° urotergo libero è distinta, quella sul 2° urotergo è svanita, quella sugli uroterghi 4° e 5° è netta. La punteggiatura su tutta la superficie del corpo è netta. I prolungamenti degli angoli posteriori del 1° urotergo libero del maschio, in visione laterale sono allargati nella zona mediana e terminano a punta molto acuta. Edeago figg. 116-117, spermateca fig. 118.

COMPARAZIONI: La nuova specie è simile a *Z.* (*C.*) *maculipennis* Bernhauer, 1928, dell'Africa Orientale; se ne distingue per il disco del capo del maschio concavo, per il 4°



Figg. 112-119. Habitus, edeago in visione laterale e ventrale e spermateca. 112-115: *Zyras* (*Camonia*) *sericatus* n. sp.; 116-119: *Zyras* (*Camonia*) *bipunctatus* n. sp.

antennomero trasverso (e non lungo quanto largo come in *maculipennis*), per l'assenza di un solco mediano sul pronoto e per l'addome distintamente punteggiato (addome quasi senza punteggiatura in *maculipennis*).

Zyras (**Camonia**) **invictus** n. sp. (figg. 120-122)

TIPI: Holotypus ♂, Namibia, East Caprivi, Mudumu NP., lux, Nakatwa, 8-13.III.1992, (Uhlig leg., MBE). Paratypi: 3 ♂♂, Namibia, East Caprivi: Katima Mulilo, lux, 8.III.1992, (Uhlig leg.).

DESCRIZIONE: Lungh. 8,5 mm. Capo opaco e resto del corpo più o meno lucido. Capo nero, pronoto ed elitre giallo-rossicci, addome bruno con margini posteriori degli uriti, con le spine e con l'estremità distale, bruno-rossicci; antenne brune con i tre antennomeri basali e l'undicesimo giallo-rossicci; zampe rossicce con femori giallo-rossicci. Il capo mostra una reticolazione discale netta: al di fuori del disco non è presente reticolazione, ma una netta punteggiatura. Due setole sono inserite tra le antenne sulla fronte: davanti a queste la superficie è nettamente reticolata. La reticolazione del pronoto è netta sul disco e svanita ai lati, quella delle elitre è assente. La punteggiatura del pronoto, delle elitre e dell'addome è netta. Edeago figg. 121-122.

COMPARAZIONI: La nuova specie è sistematicamente vicina a *Z.* (*C.*) *fundatus* Last, 1963 dello Zaire. Se ne distingue per avere il disco del capo del maschio regolarmente convesso (e non depresso come in *fundatus*), per la presenza di due lunghe setole tra le antenne (assenti in *fundatus*), per l'undicesimo antennomero lungo quanto i tre precedenti antennomeri insieme (e non un po' più lungo dei due penultimi antennomeri insieme), per la netta reticolazione e l'assenza di una depressione mediana del pronoto del maschio (reticolazione molto superficiale e stretta e distinta depressione mediana del pronoto di *fundatus*) e per la presenza di un tubercolo mediano sul 2° e sul 5° urotergo libero del maschio (assenti in *fundatus*).

Zyras (**Camonia**) **modestus** n. sp. (figg. 123-126)

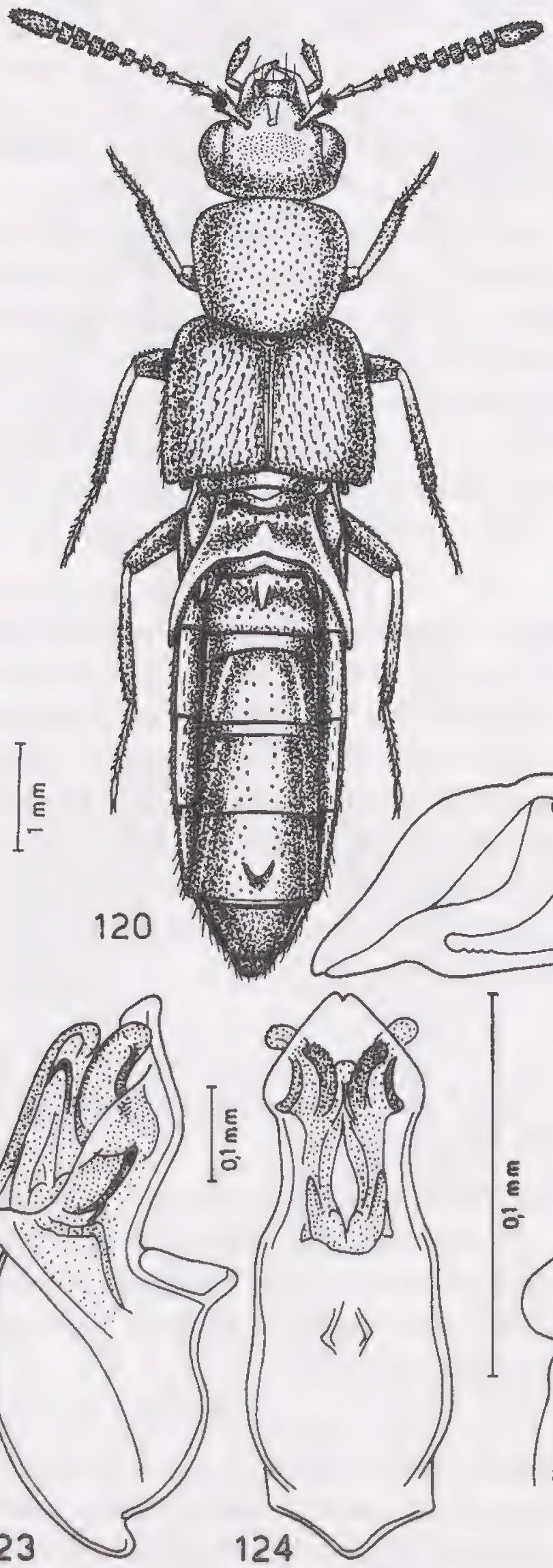
TIPI: Holotypus ♂, Namibia, Kavango: Mahango Game Reserve, lux, 2.III.1992, (Uhlig leg., MBE). Paratypi: 2 ♂♂ e 1 ♀, stessa provenienza (MBE, MT).

DESCRIZIONE: Lungh. 6,2 mm. Corpo lucido e interamente giallo-rossiccio, comprese antenne e zampe. Il capo e le elitre presentano una reticolazione estremamente superficiale; il resto del corpo ne è privo. La punteggiatura su tutto il corpo è netta; sul pronoto punti maggiori sono frammisti a punti fini. Il 6° urotergo libero del maschio presenta a ciascun lato una plica. Edeago figg. 123-124 , spermateca fig. 125.

COMPARAZIONI: La nuova specie è simile a *Z.* (*C.*) *subglabripennis* Bernhauer, 1943, dello Zaire. Se ne distingue per il corpo interamente giallo-rossiccio (capo, in parte le elitre e parte dell'addome nero-bruni in *subglabripennis*), per le tempie lunghe quanto gli occhi (tempie lunghe appena la metà della lunghezza degli occhi in *subglabripennis*) e per la robusta e sparsa punteggiatura delle elitre (elitre finemente punteggiate in *subglabripennis*).

Zyras (**Androdonia**) **kavangensis** n. sp. (figg 127-130)

TIPI: Holotypus ♂, Namibia, Kavango: Popa Falls, lux, 26.II-3.III.1992, (Uhlig leg., MBE).



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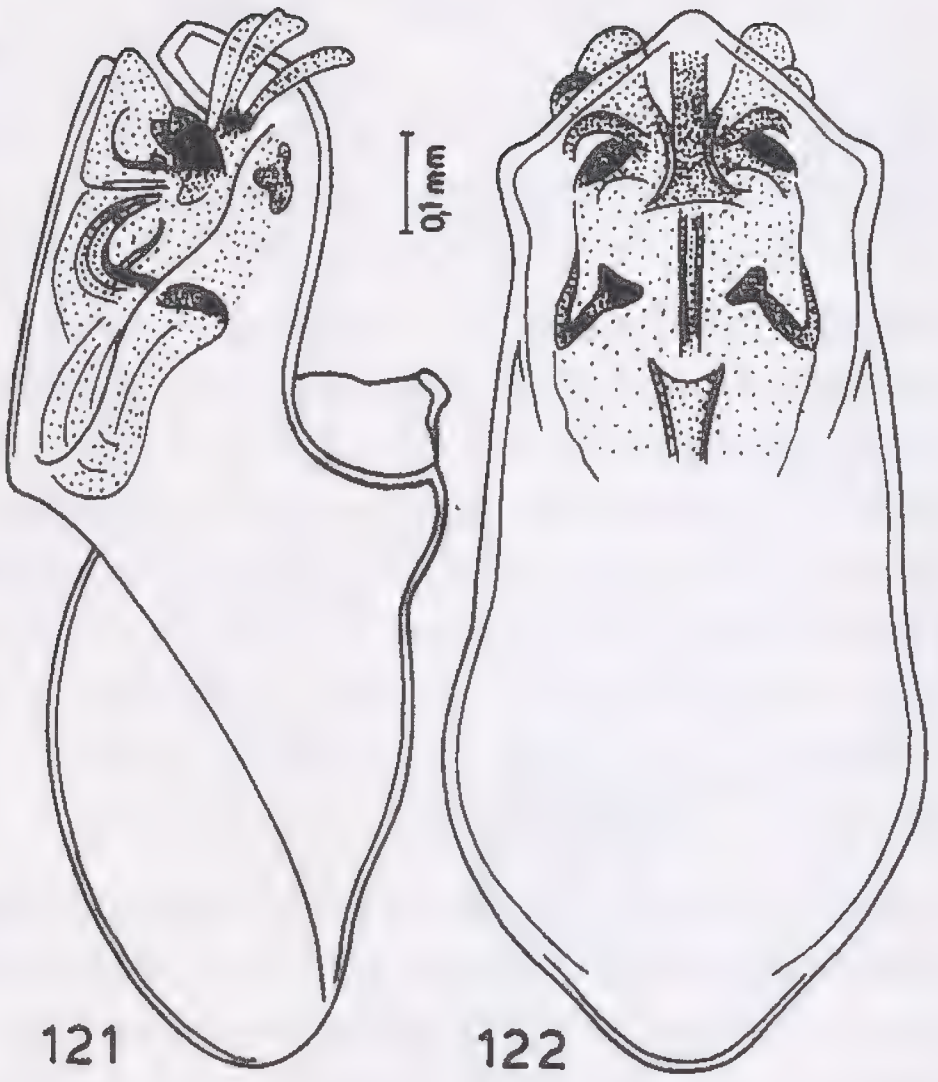

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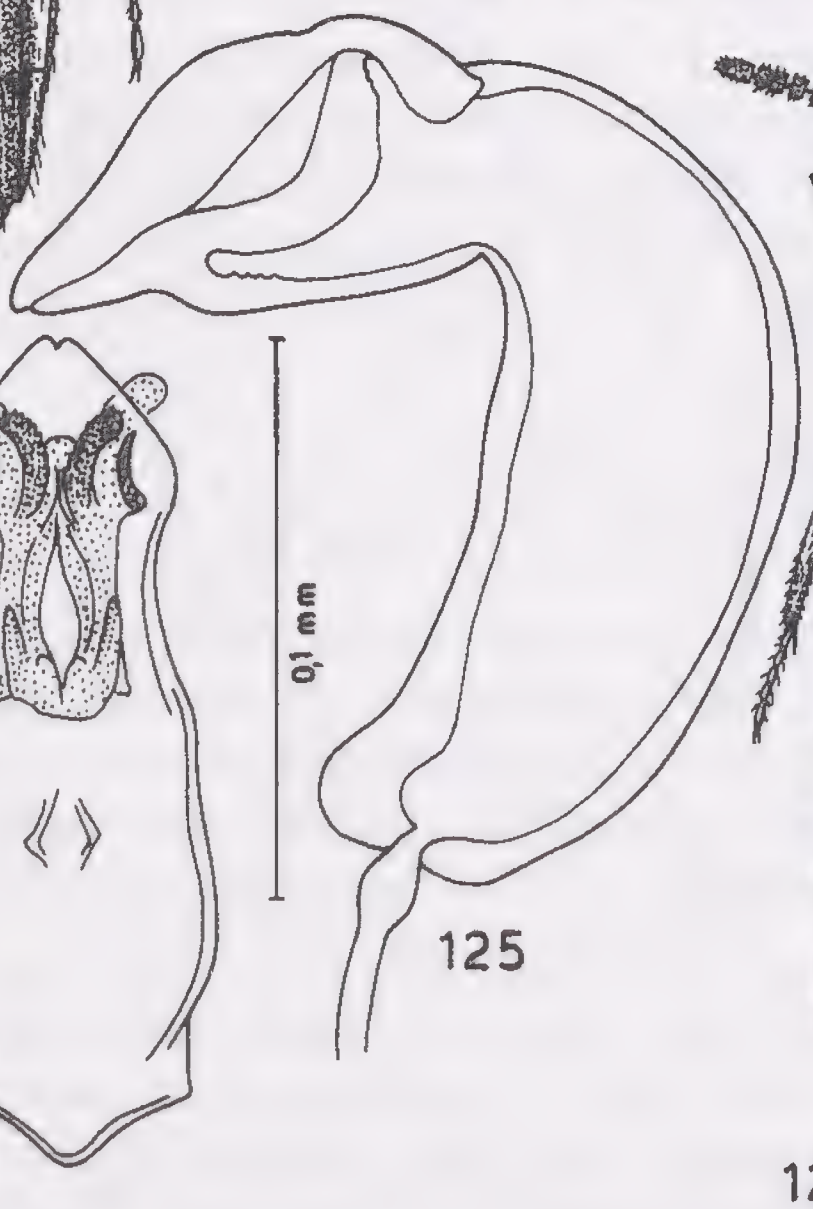

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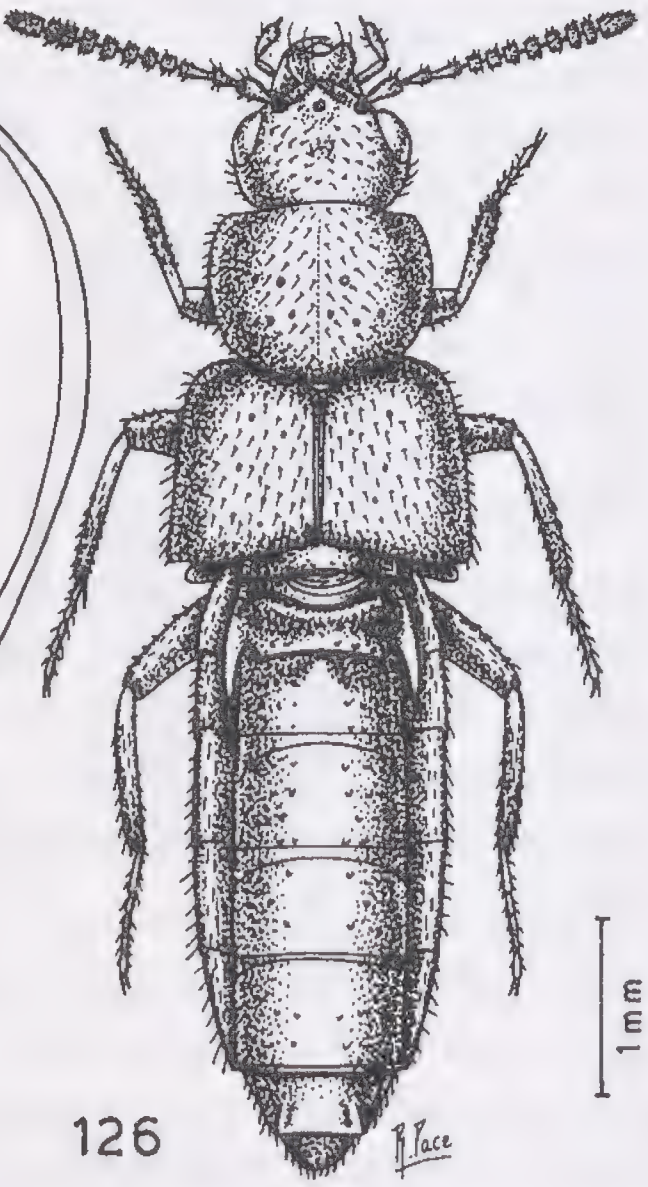

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Figg. 120-126. Habitus, edeago in visione laterale e ventrale e spermateca. 120-122: *Zyras* (*Camonia*) *invictus* n. sp.; 123-126: *Zyras* (*Camonia*) *modestus* n. sp.

Paratypi: 4 ♂♂ e 15 ♀♀, stessa provenienza (MBE, MT).

DESCRIZIONE: Lungh. 12,7 mm. Corpo lucido con capo e uriti liberi 4 e 5 bruni, con elitre giallo-rossicce con parte interna bruna e con il resto del corpo giallo-rossiccio; antenne brune con i tre antennomeri basali e l'apice dell'undicesimo giallo-rossicci. La reticolazione della superficie del capo è fine e un po' svanita, quella del pronoto è netta, quella delle elitre è nettissima, quella dei tre uriti basali è distinta e quella sui restanti uriti è estremamente svanita. La punteggiatura del capo e del pronoto è netta, quella delle elitre è superficiale. Il prolungamento degli angoli del 1° urotergo libero del maschio, in visione laterale è a lati paralleli. Edeago figg. 128-129, spermateca fig. 130.

COMPARAZIONI: La nuova specie è simile a *Z.* (*A.*) *reicherti* Wasmann, 1912, del Sudafrica, per avere il pronoto non trasverso. Se ne distingue per avere, il maschio, il margine posteriore del 1° urotergo libero a forma di angolo e i prolungamenti laterali dello stesso urotergo, in visione laterale, semplici e paralleli fino all'estremità.

Zyras (**Androdonia**) **caprivensis** n. sp. (figg. 131-134)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg., MBE). Paratypi: 5 ♂♂ e 8 ♀♀, stessa provenienza; 1 ♂, Namibia, Kavango: Popa Falls, 26.II-3.III.1992 (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 12,9 mm. Capo e pronoto debolmente opachi, parte restante del corpo lucida. Capo nero, pronoto giallo-rossiccio, elitre brune con base sfumata di giallo-rossiccio, addome bruno con sua estremità e urite 1° compresi i prolungamenti e la base del 2° rossicci; antenne bruno-rossicce con i due antennomeri basali e l'apice dell'undicesimo giallo-rossicci; zampe giallo-rossicce. La reticolazione del capo e del pronoto, nei due sessi, è netta, quella delle elitre è nettissima e quella del 1° urotergo libero è distinta. I prolungamenti del 1° urotergo libero del maschio all'estremità distale sono dilatati, con una membrana apicale. Edeago figg. 132-133, spermateca fig. 134.

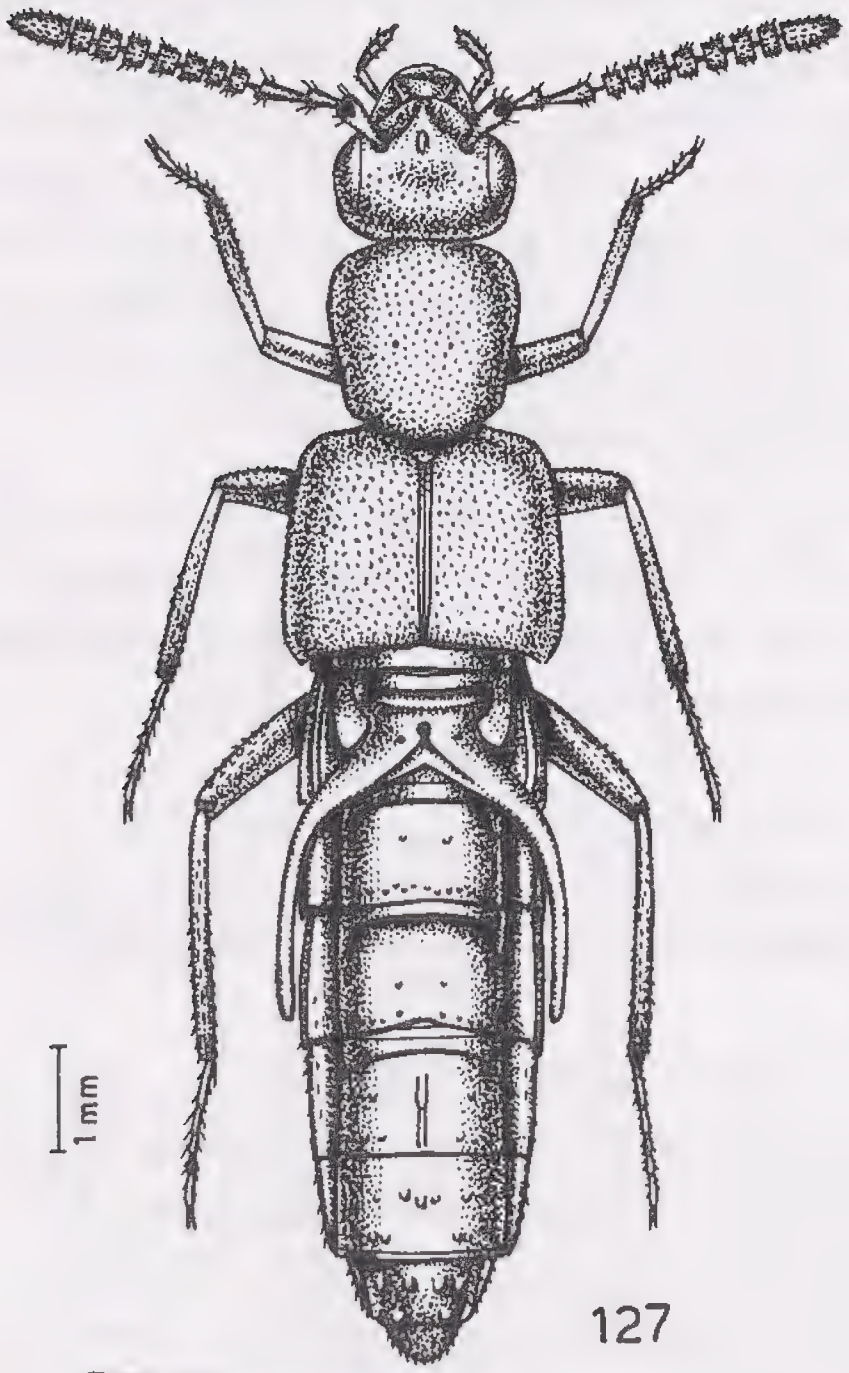
COMPARAZIONI: La nuova specie è simile a *Z.* (*A.*) *bicochleatus* Scheerpeltz, 1957, della Tanzania. Se ne distingue per le più ampie espansioni apicali dei prolungamenti degli angoli del 1° urotergo libero del maschio e per il margine posteriore del 6° urotergo libero del maschio, incavato (e non tronco in linea retta, come in *bicochleatus*).

Zyras (**Ctenodonia**) **uncifer** n. sp. (figg. 135-137)

TIPI: Holotypus ♂, Namibia, Bushmanland Klein Dobe, lux, 19-21.II.1992, (Uhlig leg., MBE). Paratypi: 1 ♂, stessa provenienza; 3 ♂♂, Namibia, East Caprivi: Mudumu NP., Nakatwa, lux, 8-13.III. 1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 9,7 mm. Pronoto ed elitre debolmente opachi, resto del corpo lucido. Capo nero, pronoto giallo-rossiccio, elitre nero-brune con urite libero 1° e lati del 2° rossicci; antenne brune con i due antennomeri basali e l'apice dell'undicesimo giallo-rossicci; zampe giallo-rossicce. La reticolazione del capo e dell'addome è distinta, quella del pronoto e delle elitre è netta. La punteggiatura del capo è netta e assente sulla 4ª stria mediana, quella del pronoto e delle elitre è distinta. Edeago figg. 136-137.

COMPARAZIONI: La nuova specie è simile a *Z.* (*C.*) *inclytus* Wasmann, 1894, della Sierra Leone. Ne è distinta per i penultimi antennomeri lunghi quanto larghi (e non più lunghi



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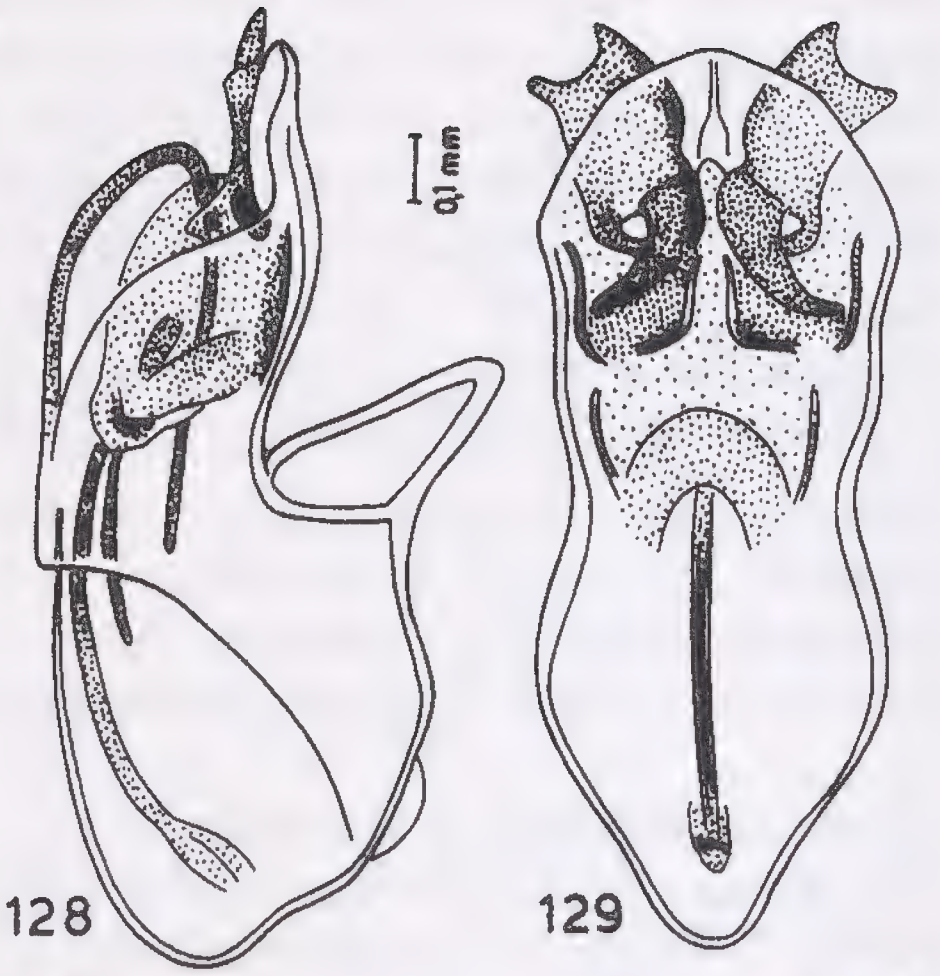

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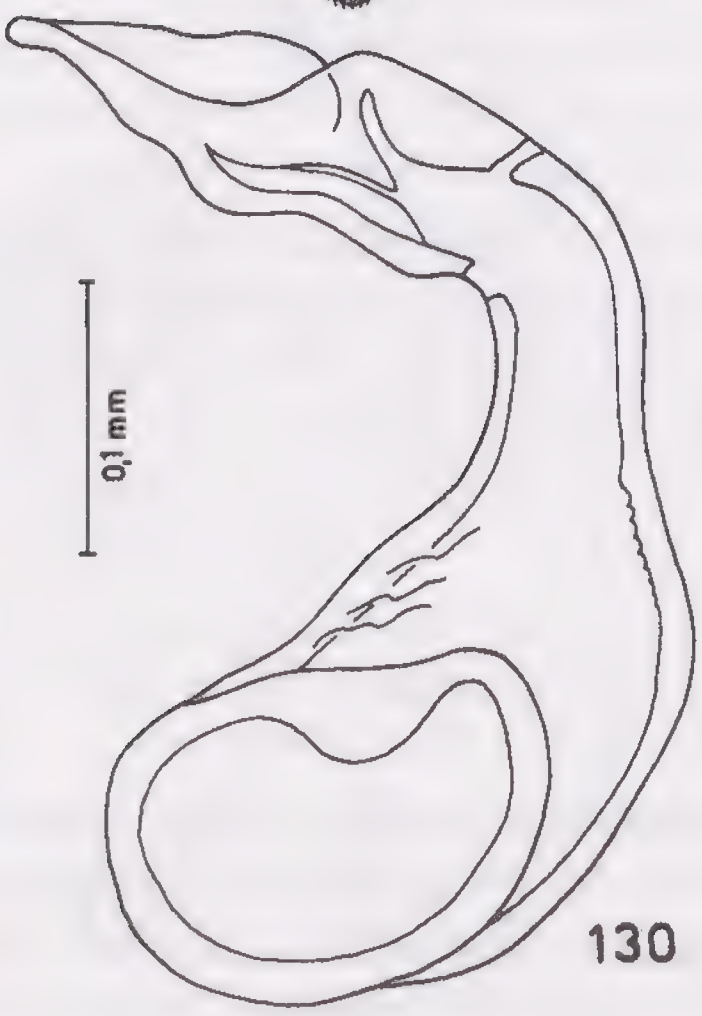

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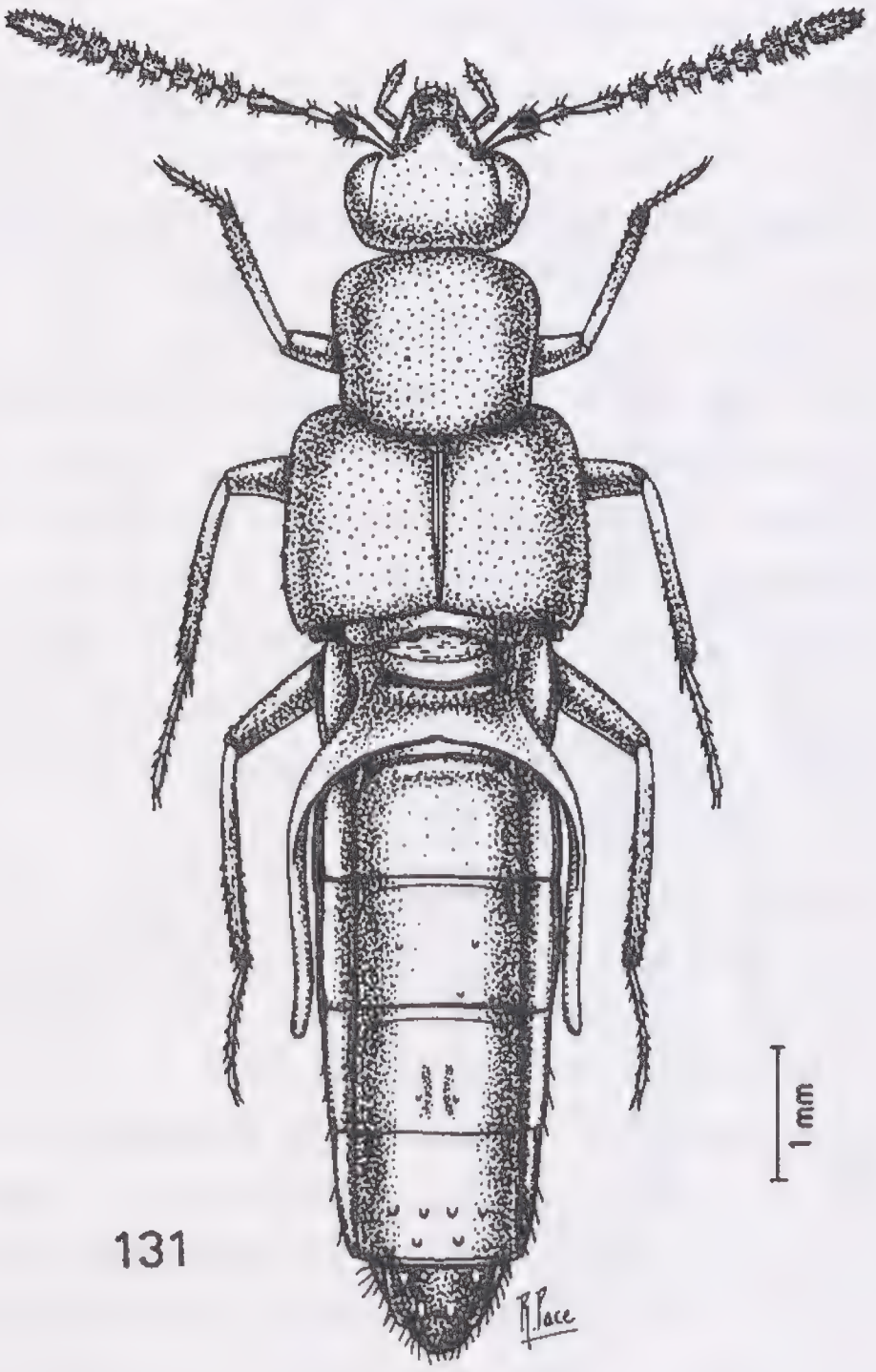

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Figg. 127-131. Habitus, edeago in visione laterale e ventrale e spermateca. 127-130: *Zyras* (*Androdonia*) *kavangensis* n. sp.; 131: *Zyras* (*Androdonia*) *caprivensis* n. sp.

che larghi come in *inclytus*), per il pronoto chiaramente trasverso (pronoto quasi così lungo quanto largo in *inclytus*) e per l'edeago meno sviluppato e con flagello del sacco interno sporgente dall'orifizio apicale dell'edeago (assente in *inclytus*).

Paramyrmoecia sanguinicollis (Scheerpeltz, 1974a)

Zyras (*Paramyrmoecia*) *sanguinicollis* Scheerpeltz, 1974a: 33

Paramyrmoecia sanguinicollis: Kistner & Elliot, 1985: 318

1 ♀, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg.).

Specie diffusa in Sudan ed Etiopia, nuova per la Namibia.

Paramyrmoecia bipustulata (Bernhauer, 1915)

Zyras bipustulatus Bernhauer, 1915: 164

Paramyrmoecia bipustulatus (sic!): Kistner & Elliot, 1985: 316

82 es., Namibia, East Caprivi, Mudumu NP., Nakatwa, lux, Buffalo Trail e Katima Mulilo, lux, 8-13.III.1992 e 3-8. III.1992, (Uhlig leg.); 1 es., Namibia, Bushmanland: Klein Dobe, lux, 19-21.II.1992, (Uhlig leg.) (MBE, MT).

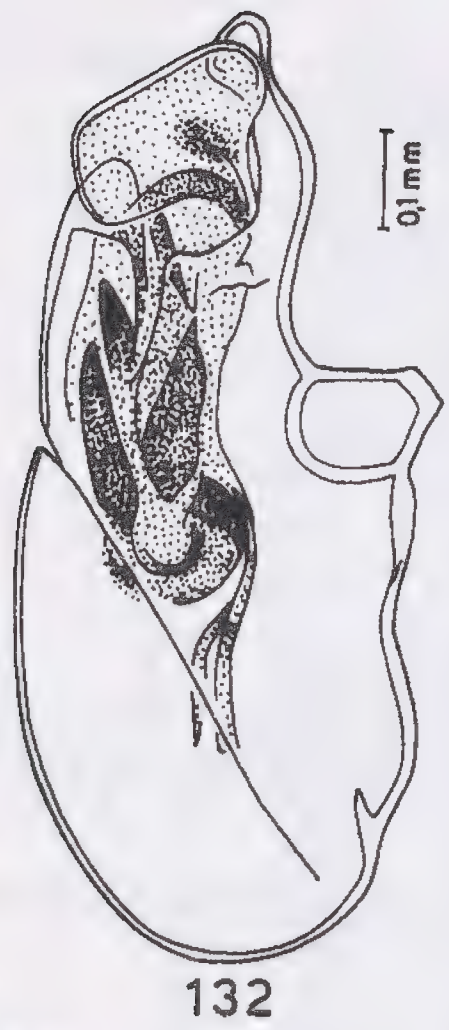
Specie largamente diffusa in Etiopia, Sudan, Angola, Sudafrica, Tanzania, Rodesia, Botswana, Senegal e Gambia. Nuova per la Namibia.

Porus discalis n. sp. (figg. 138-141)

TIPI: Holotypus ♂, Namibia, East Caprivi: Katima Mulilo, lux, 3-8.III.1992, (Uhlig leg., MBE). Paratypi: 12 ♂♂ e 7 ♀♀, stessa provenienza; 3 ♂♂ e 3 ♀♀, Namibia, Kavango, East Caprivi, Game Park, Buschmanland, 1.III.1992, (B. Koch leg.); 2 ♀♀, Bushmanland: Klein Dobe, lux, 19-21.II.1992, (Uhlig leg.) (MBE, MT).

DESCRIZIONE: Lungh. 9,6 mm. Corpo lucido e giallo-rossiccio; antenne bruno-rossicce con i tre antennomeri basali rossicci; zampe giallo-rossicce. La reticolazione del disco del capo è vigorosa e d'aspetto vellutato, assente sul resto della superficie dove la punteggiatura è distinta. Il pronoto è senza reticolazione e ha punteggiatura fine e distinta. Lo scutello è vigorosamente reticolato. Le elitre mostrano punteggiatura netta e una reticolazione a maglie longitudinali distinte solo sulla metà posteriore. La reticolazione sugli uroterghi basali 1° e 2° è trasversa e distinta, quella sui restanti uroterghi non è visibile. Il secondo urotergo libero del maschio presenta una larga fovea mediana basale, il 3° ne mostra una simile, ma meno profonda. La carena sul 5° urotergo libero del maschio è affilata. Edeago figg. 139-140, spermateca fig. 141.

COMPARAZIONI: La nuova specie, avendo il pronoto più ristretto in avanti che posteriormente, è simile a *P. cupulifer* Raffray & Fauvel, 1899, del Senegal; se ne distingue per avere il disco del capo reticolato (e non liscio come in *P. cupulifer*), per il 2° urotergo libero del maschio con una larga fovea mediana basale (e non superficialmente carenato longitudinalmente come in *cupulifer*) e per avere il 5° urotergo libero del maschio con una carena mediana affilata (e non una piastra tubercolata cupuliforme come in *cupulifer*).



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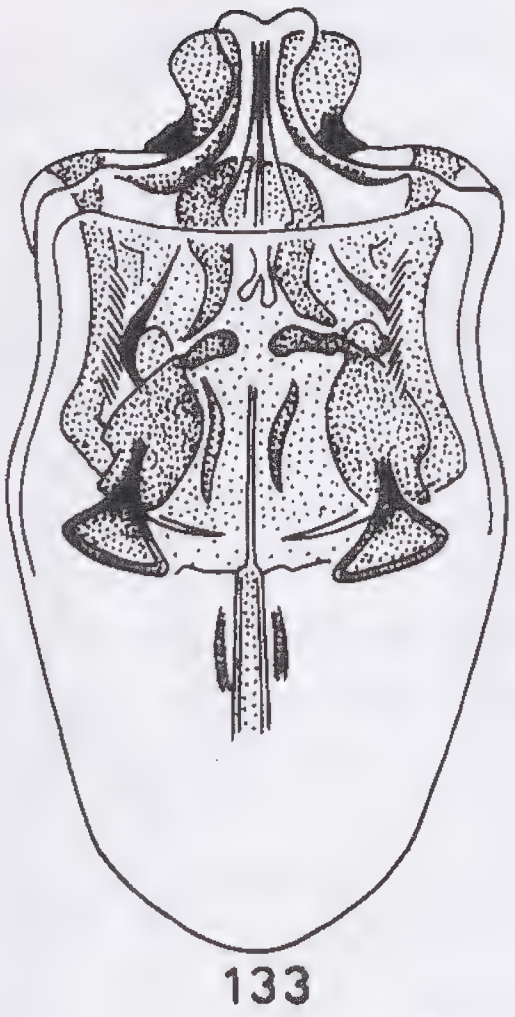

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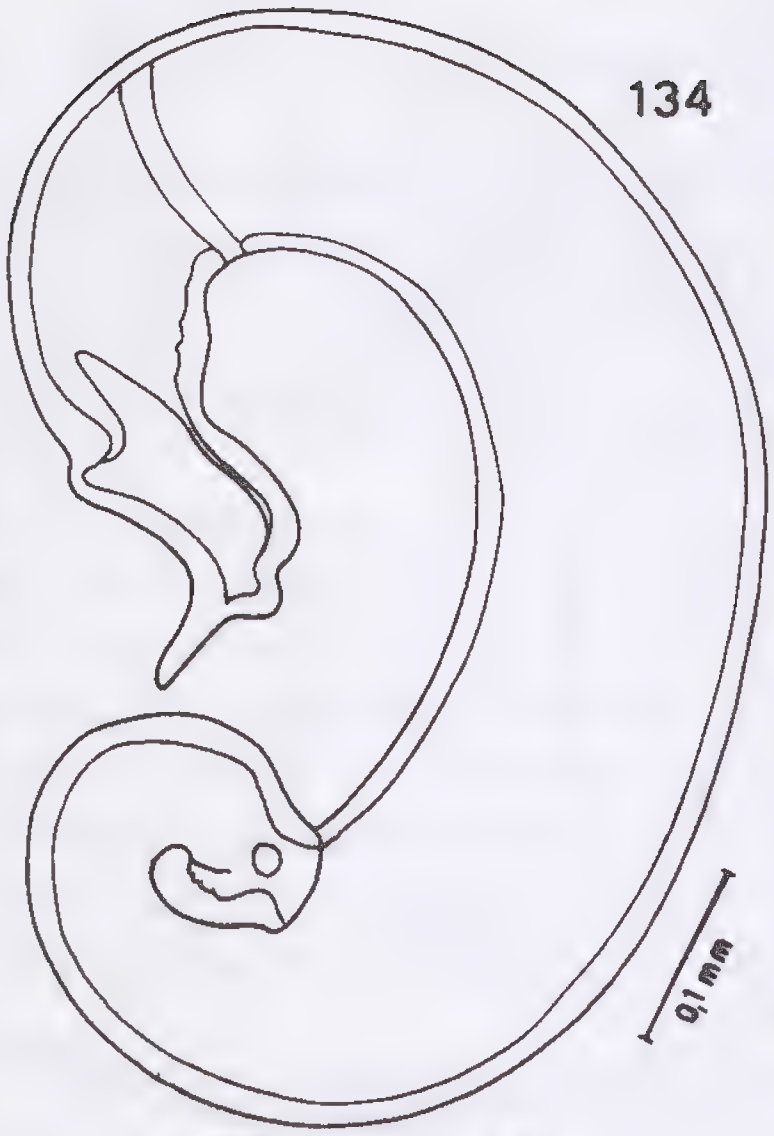

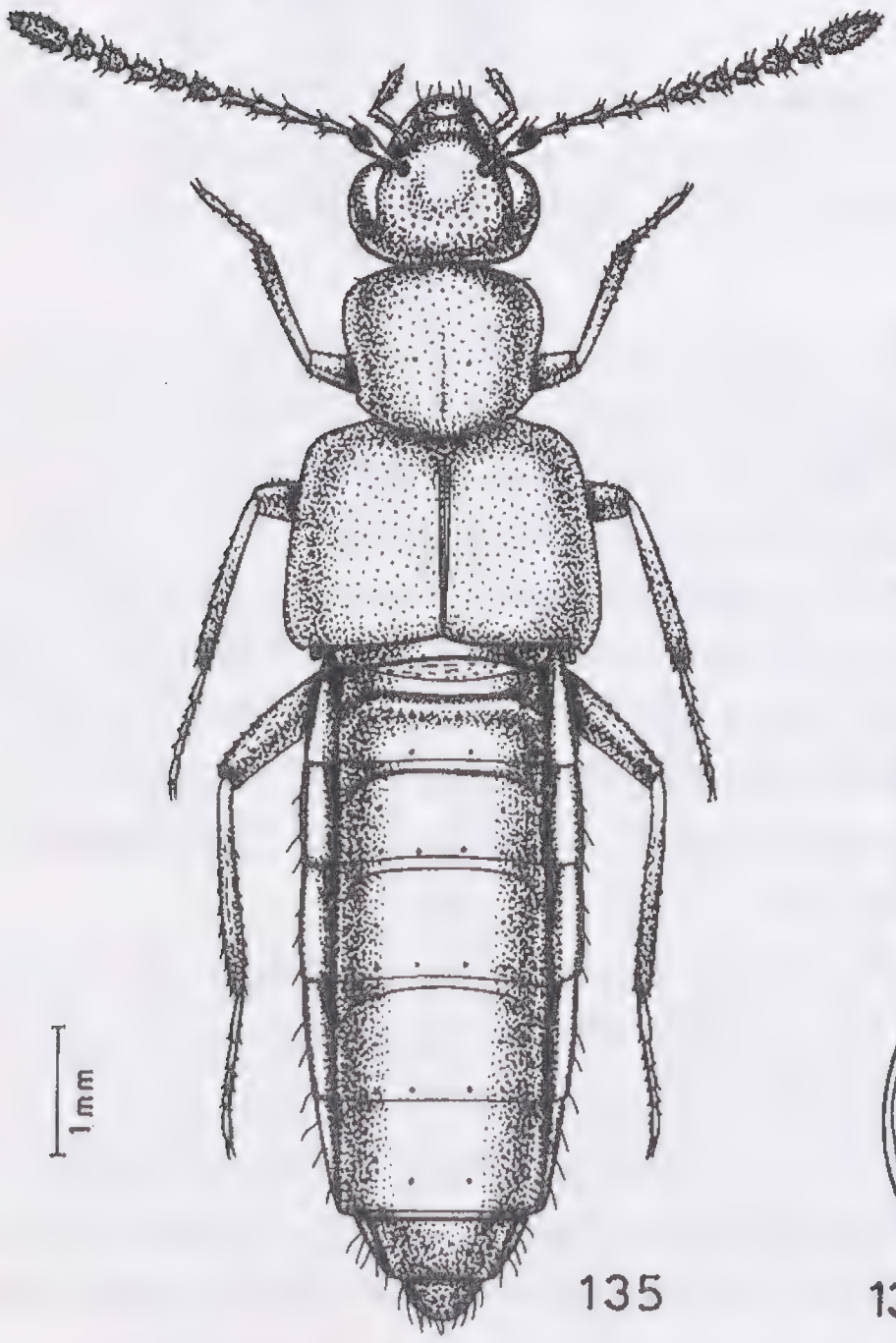

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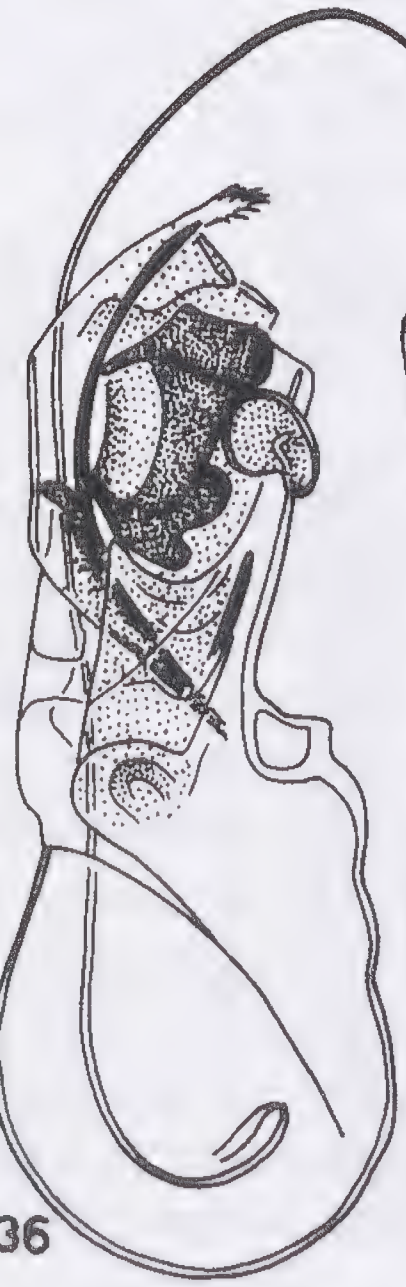

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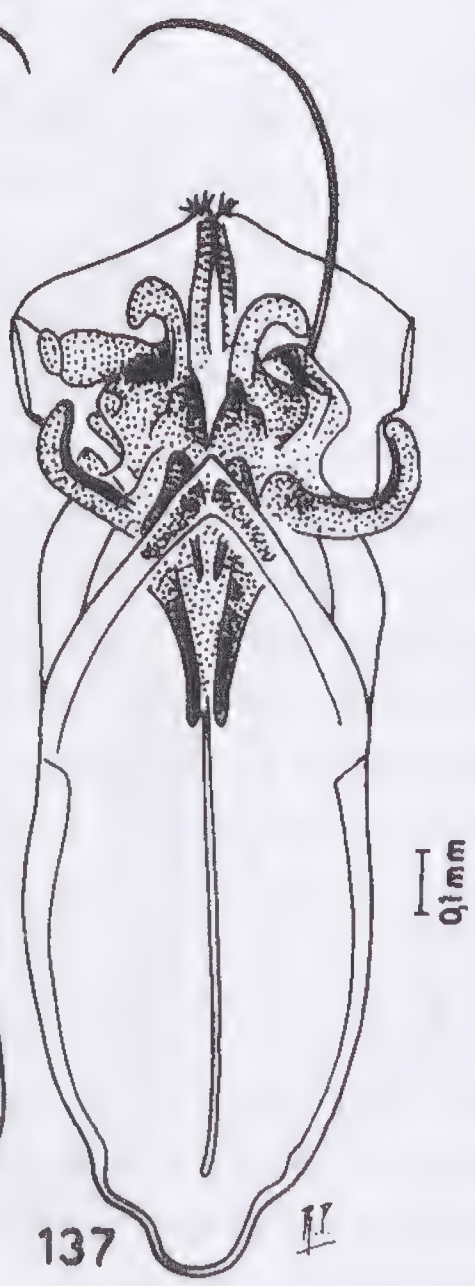

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Figg. 132-137. Edeago in visione laterale e ventrale, spermateca e habitus. 132-134: *Zyras* (*Androdonia*) *caprivensis* n. sp.: 135-137: *Zyras* (*Ctenodonia*) *uncifer* n. sp.

Tribù Oxypodini

Apimela uhligi n. sp. (figg. 142-145)

TIPI: Holotypus ♂, Namibia, Kavango, Buffalo Camp, Kavango-Ufervegetation gesiebt, 28.II.1992, (Uhlig leg., MBE). Paratypi: 4 ♀♀, stessa provenienza (MBE, MT).

DESCRIZIONE: Lungh. 1,4 mm. Corpo lucido e giallo-bruno sporco con capo, elitre e uriti liberi 4° e 5° bruni; antenne brune con i tre antennomeri basali gialli; zampe gialle. Su tutto il corpo non è presente microreticolazione. La punteggiatura dell'avancorpo è fine fitta e poco distinta. L'addome è coperto di tubercoletti fini e fitti. Edeago figg. 143-144, spermateca fig. 145.

COMPARAZIONI: La nuova specie è simile, ma ben distinta da *A. subparallela* (Bernhauer, 1938), dello Zaire, (tipi esaminati), per i caratteri dati nella seguente chiave:

1 - Occhi lunghi quanto le tempie; elitre molto più lunghe del pronoto; edeago bruscamente ricurvo al lato ventrale, con un pezzo copulatore triangolare sporgente dall'orifizio apicale dell'edeago stesso; spermateca descrivente due ampie spire con tubulo di grande calibro e una breve matassa di tubulo a calibro sottile. Lungh. 1,7 mm. Zaire ..... *subparallela* (Bernhauer)
- Occhi molto ridotti, tempie lunghe il doppio degli occhi; elitre poco più lunghe del pronoto; edeago a profilo ventrale bisinuato, con lineare pezzo copulatore del sacco interno; spermateca composta di una matassa di tubulo di calibro estremamente ridotto e la parte apicale di grande sviluppo. Lungh. 1,4 mm. Namibia ..... *uhligi* n. sp.

Tribù Hoplandriini

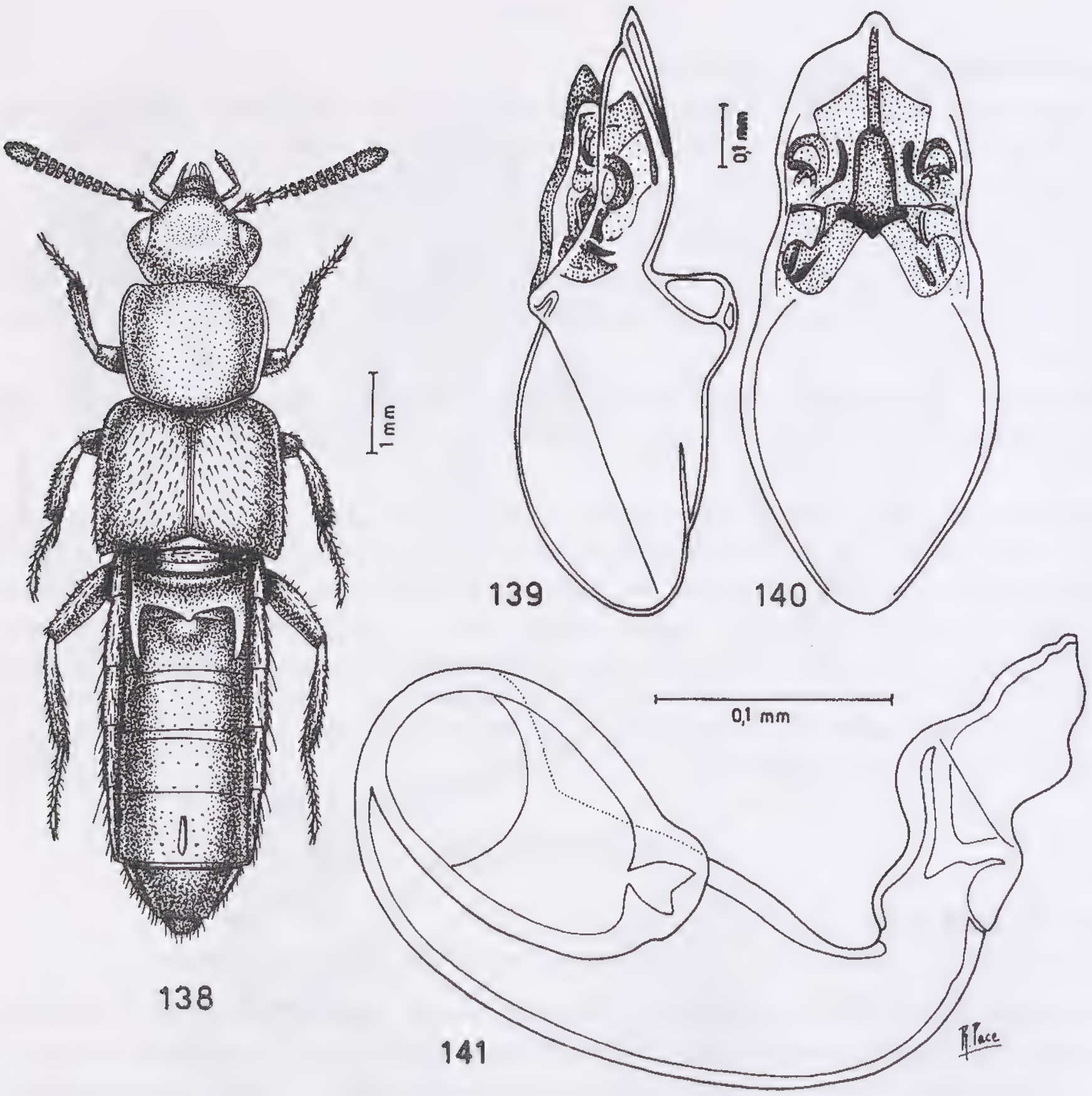
Tinotus namibiensis n. sp. (figg. 146-148)

TIPO: Holotypus ♂, Namibia, Osona bei Okahandja, III.IV.1989, (J. Irisch leg., MBE).

DESCRIZIONE: Lungh. 4,4 mm. Corpo convesso, lucido e bruno con elitre e margine posteriore degli uriti, bruno-rossicci; antenne bruno-rossicce con antennomero basale e base del 2° giallo-rossicci; zampe rossicce. La reticolazione del capo e del pronoto è estremamente svanita, quella del resto del corpo è assente. La punteggiatura del capo è distinta e fine, quella del pronoto e delle elitre è superficiale. Edeago figg. 146-147.

COMPARAZIONI: La nuova specie è distinta da *T. minutus* Bernhauer, 1915, dell'Africa Orientale (tipi esaminati) e da altre specie per i caratteri contrapposti nella seguente chiave:

1 - Taglia maggiore (circa 4,0 mm); elitre più corte del pronoto. Lungh. 4,4 mm. Namibia ..... *namibiensis* n. sp.
- Taglia minore (circa 2,0 mm); elitre più lunghe del pronoto 2
2 - Corpo bruno-rossiccio 3
- Corpo bruno 4
3 - Edeago con angolo ventrale retto; spermateca di maggiore grandezza, con bulbo distale flesso e di larghezza uniforme. Lungh. 2,2 mm. Zaire ..... *zairensis* Pace
- Maschio sconosciuto; spermateca di taglia minore, con bulbo distale rettilineo e fortemente strozzato presso la parte apicale, cosicché l'estremità distale ha forma di sfera. Lungh. 2,2 mm. Tanzania ..... *minutus* Bernhauer
4 - 4° antennomero trasverso; edeago più piccolo, con flagello del sacco interno non avvolto a



Figg. 138-141. *Porus discalis* n. sp.: Habitus, edeago in visione laterale e ventrale e spermateca.

matassa entro il bulbo basale; spermateca con tubulo avvolto a matassa addossato al bulbo prossimale. Lungh. 2,3 mm.Natal .....*natalensis* Pace

- 4° antennomero lungo quanto largo; edeago più grande; con flagello del sacco interno avvolto a matassa dentro il bulbo basale; femmina sconosciuta. Lungh. 2,4 mm. Natal, Tanzania ....*major* Pace

Tribù Aleocharini

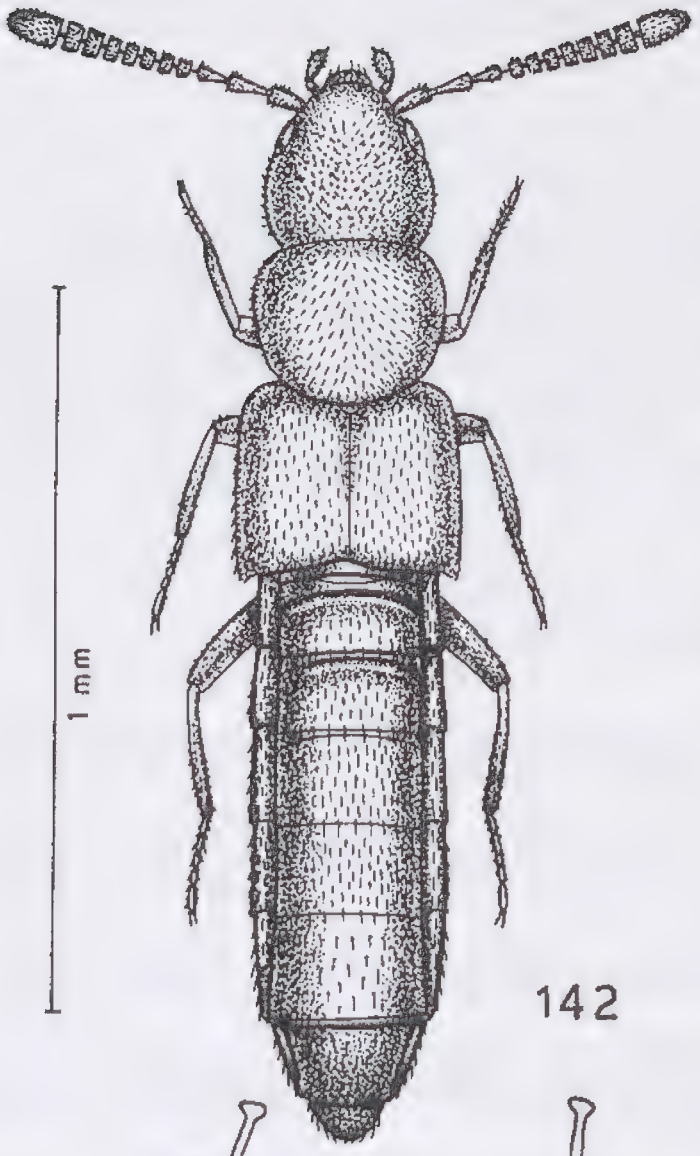
Aleochara (*Xenochara*) *rutilipennis* Kraatz, 1859

Aleochara (*Isochara*) *rutilipennis*: Cameron, 1939: 639

Aleochara (*Xenochara*) *rutilipennis*: Klimaszewski & Jansen, 1993: 62

31 es., SWA Namibia, Nyangana, Okavango, 14-22.I.1985, (H. Roer leg., MBO).

Diffusa dal Sudan all'Asia meridionale e Australia (esemplari comparati con i tipi di Ceylon). Secondo Klimaszewski & Jansen (1993) la specie non sarebbe presente in Africa. I pezzi



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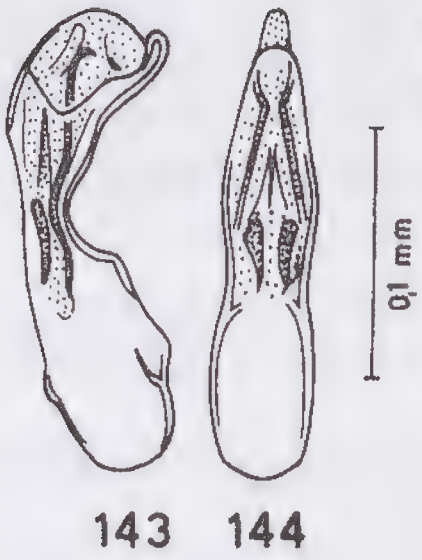

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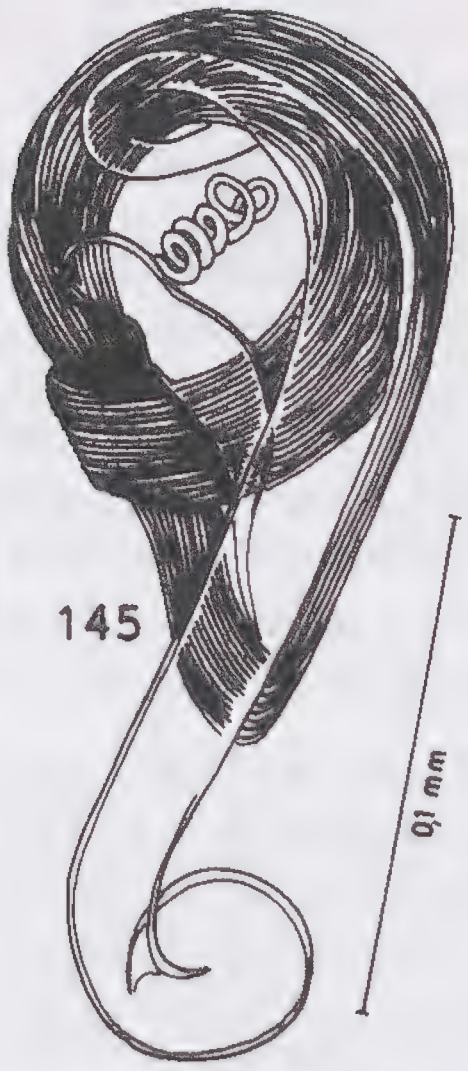

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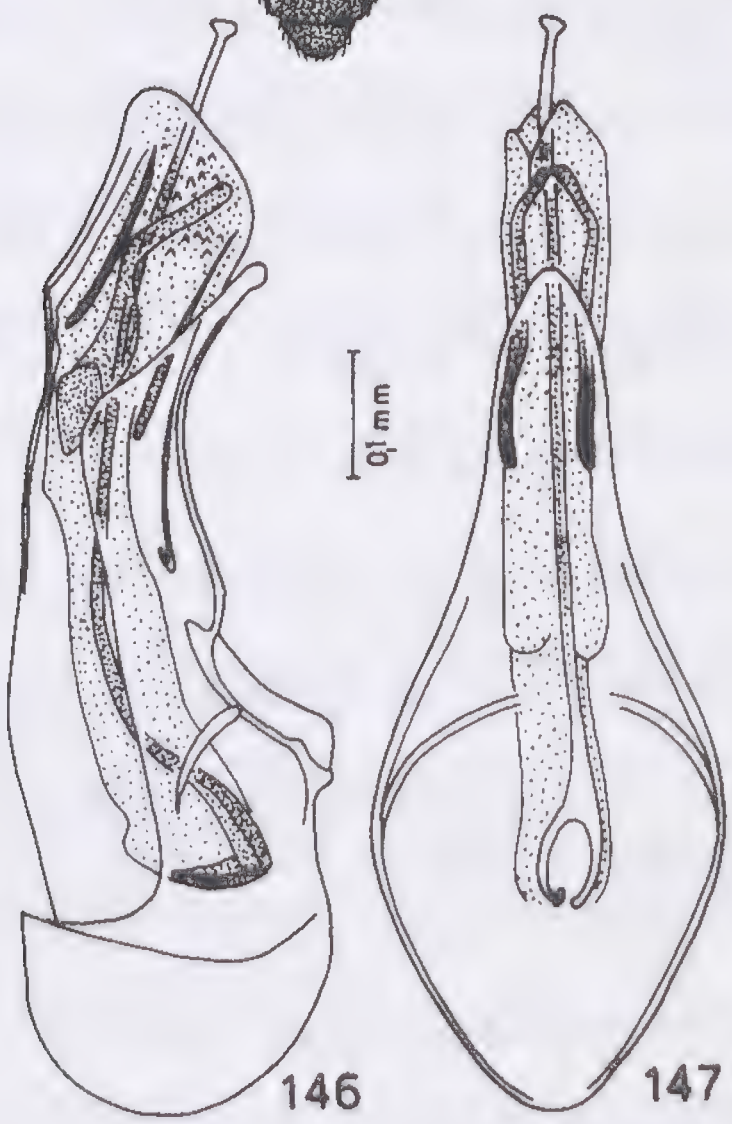

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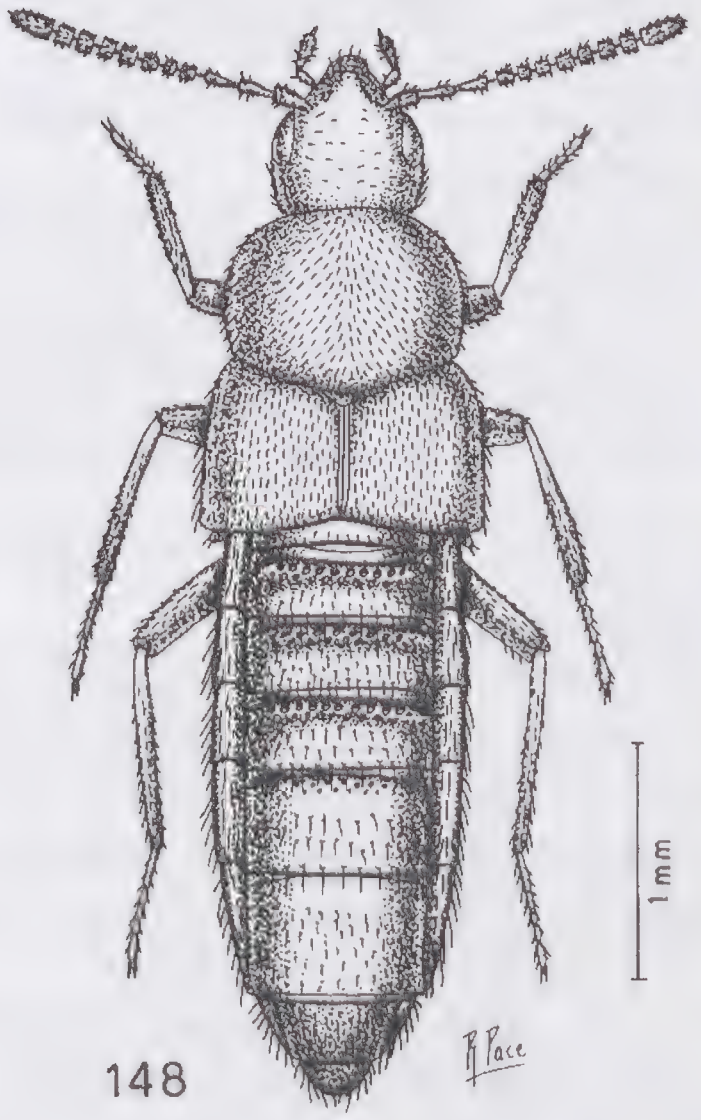

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Figg. 142-148. Habitus, edeago in visione laterale e ventrale e spermateca. 142-145: *Apimela uhligi* n. sp.; 146-148: *Tinotus namibiensis* n. sp.

copulatori del sacco interno degli esemplari della Namibia sono identici a quelli dei tipi di Ceylon da me esaminati e le elitre rosse confermano che siamo in presenza della medesima specie a larga distribuzione pantropicale.

RINGRAZIAMENTI

Ringrazio vivamente il dr Manfred Uhlig del Museo di Storia Naturale di Berlino e il dr H. Roer del Museo di Storia Naturale di Bonn per avermi affidato in esame il materiale da essi raccolto e oggetto del presente lavoro. Per il prestito di tipi e di materiale di confronto ringrazio ancora il dr M. Uhlig, il dr L. Baert dell'Institut Royal des Sciences Naturelles di Bruxelles, il dr L. Zerche del D.E.I. di Eberswalde e il dr P. M. Hammond del Natural History Museum di Londra. e il dr A. F. Newton del Field Museum of Natural History di Chicago.

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Mem. Soc. entomol. ital., 77: 213-240 *31 marzo 1999*

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Contributo alla conoscenza dei Merophysiidae e Latridiidae dell'Italia meridionale e della Sicilia (Coleoptera)

Riassunto - Sono trattate 13 specie di Merophysiidae e 52 di Latridiidae (per complessivi 5.500 esemplari) raccolte nell'Italia meridionale e in Sicilia. Di ciascuna specie sono riportate le località di raccolta, la distribuzione in Italia e generale e, ove disponibili, brevi notizie di carattere ecologico. Le seguenti 9 specie risultano nuove per la fauna italiana: *Cholovocera attae* Kraatz, *Merophysia striatella* Reitter, *Latridius pseudominutus* Strand, *Enicmus atriceps* Hans, *Dienerella angelinii* Rücker, *Dienerella corsica* Vincent, *Corticaria* n.sp., *Corticaria fagi* Wollaston, *Migneauxia lederi* Reitter; 11 specie risultano nuove per l'Italia meridionale: *Holoparamecus depressus* Curtis, *H. ragusae* Reitter, *Cholovocera fleischeri* (Reitter), *Metophthalmus* cfr. *solarii* Binaghi, *Revelieria genei* (Aubé), *Dienerella elegans* (Aubé), *Adistemia watsoni* Wollaston, *Stephostethus alternans* (Mannerheim), *Corticaria longicollis* (Zetterstedt), *C. saginata* Mannerheim, *C. fuscula* (Gyllenhal); 8 specie sono segnalate per la prima volta della Sicilia. In due tabelle sono riportate tutte le specie note per l'Italia meridionale e la Sicilia, con la relativa distribuzione, sia in base al materiale esaminato che sui dati bibliografici. Complessivamente per l'area in esame risultano note 82 specie, pari al 77% della fauna italiana.

Abstract - *Contribution to the knowledge of Merophysiidae and Latridiidae of Southern Italy and Sicily (Coleoptera).*

Zoogeographic and/or systematic data are presented for 13 species of Merophysiidae and 52 Latridiidae (based on a sample study of 5.500 specimens) found in Southern Italy and Sicily. For each species the collection locality, Italian and world distribution is given, ecological data are included where available. The following nine species are new to Italy: *Cholovocera attae* Kraatz, *Merophysia striatella* Reitter, *Latridius pseudominutus* Strand, *Enicmus atriceps* Hans, *Dienerella angelinii* Rücker, *Dienerella corsica* Vincent, *Corticaria* n. sp., *Corticaria fagi* Wollaston, *Migneauxia lederi* Reitter. The following eleven species represent first records for Southern Italy: *Holoparamecus depressus* Curtis, *H. ragusae* Reitter, *Cholovocera fleischeri* (Reitter), *Metophthalmus* cfr. *solarii* Binaghi, *Revelieria genei* (Aubé), *Dienerella elegans* (Aubé), *Adistemia watsoni* Wollaston, *Stephostethus alternans* (Mannerheim), *Corticaria longicollis* (Zetterstedt), *C. saginata* Mannerheim, *C. fuscula* (Gyllenhal). Eight species are recorded new to Sicily. All the species known from Southern Italy and Sicily are listed in a table which includes, besides the species here examined, previously published records. In total 82 species (i.e. 77% of the Italian fauna) are known from these regions.

Key words: Coleoptera, Merophysiidae, Latridiidae, Southern Italy.

In questo contributo si rendono note le località di raccolta di 65 specie di Merophysiidae e Latridiidae rinvenute da uno degli Autori (Angelini) e dagli amici prof Luigi De Marzo, sig Vincenzo Lillo e dr Fernando Montemurro in Italia meridionale e dal dr Giorgio Sabella in Calabria e Sicilia prevalentemente negli anni tra il 1976 e il 1994. Stante la carenza di dati riguardanti tali famiglie e la troppo spesso inesatta identificazione del relativo materiale, abbiamo infatti ritenuto che la pubblicazione di tali dati potesse costituire, per entrambi i taxa, un prima utile base faunistica di

riferimento a livello dell'intera Italia meridionale e Sicilia.

Dell'insieme delle specie segnalate per l'Italia meridionale e la Sicilia (entrambe o singolarmente) da Horion (1961), Luigioni (1929) e Porta (1929 e 1934) o nelle descrizioni originali, le seguenti non sono comprese nel materiale qui trattato: *Holoparamecus atomus* Ragusa, *H. punctulatus* Reitter, *Merophysia sicula* Kiesenwetter, *Metophthalmus niveicollis intermedius* Binaghi, *M. ragusae* Reitter, *M. siculus* Binaghi, *Dienerella pilifera* (Reitter), *D. separanda* (Reitter), *D. siciliana* Vincent, *Stephostethus pandellei* (Brisout), *Corticaria ferruginea* Marsham, *C. illaesa* Mannerheim, *C. solarii* Reitter, *C. weisei* Reitter, *Corticarina truncatella* (Mannerheim), *Migneauxia inflata* (Rosenhauer).

Al fine di rendere più agevole la consultazione delle località di raccolta, per i dati riguardanti i raccoglitori e collezioni ove sono conservati gli esemplari sono state adottate le seguenti abbreviazioni: L: legit, C: collezione, A: Angelini, D: De Marzo, L: Lillo, M: Montemurro, S: Sabella.

Il materiale trattato è stato identificato nella quasi totalità da uno degli Autori (Rücker) e, in minima parte, dal sig L. Fancello e dal dr C. Johnson.

Nelle seguenti tabelle sono riportate tutte le specie di Merophysiidae e Latridiidae note per l'Italia meridionale e la Sicilia; per ciascuna regione viene indicata sia la fonte bibliografica che i reperti controllati mediante i simboli spiegati in didascalia; per ciascun taxon è altresì riportata la distribuzione desunta dalla Checklist dei Coleotteri italiani (Audisio & ali., 1995). Le specie complessivamente note per l'area in studio assomma a 82, pari al 77% della fauna italiana, ma é opinione degli Autori che alcune segnalazioni siano frutto di erronee identificazioni, specialmente tra le specie dei generi *Dienerella* e *Corticaria*.

Merophysiidae

Holoparamecus bertouti Aubé, 1861

MATERIALE ESAMINATO: **Sicilia**: Ris. nat. Vendicari (SR), 12 exx., 5.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio di detriti vegetali ai margini di una palude.

DISTRIBUZIONE GEOGRAFICA: Francia meridionale, Sardegna, Malta, Tunisia, Congo, Africa orientale (Rücker (1980: 150). Sicilia (Porto Empedocle) (Ragusa, 1893: 240), Sardegna e Malta (Luigioni, 1929: 529), Corsica (Porta, 1929: 213).

Holoparamecus caularum (Aubé, 1843)

MATERIALE ESAMINATO. **Puglia:** Gargano, Cagnano Varano, 1 ex., 31.VI.1981, LCA; Punta Presuti (TA), 13 exx., 24.XI.1968; Torre Bianca (TA), 1 ex., 9.III.1969; S. Pietro in Bevagna (TA), 20 exx., 23.V.1977, LDCA; Taranto, 1 ex., 29.II.1976, LCM; **Basilicata:** Policoro (MT), 18 exx., IX-XI.1976, LCA, 2 exx., 5.XI.1989, LCM; Oasi WWF Lago di San Giuliano (MT), 100 m, trappola luminosa, 1 ex., 8.VIII.1992, LCA; **Calabria:** Mass. Pollino, Campotenese (CS), 3 exx., VI-VII.1985, LCA.

NOTE ECOLOGICHE. Vaglio di detriti vegetali e di foglie in lettiera di latifoglie; anche in trappole luminose.

DISTRIBUZIONE GEOGRAFICA. Centro e sud Europa, terre del Mediterraneo, I. Canarie

Tab.1 Merophysiidae e Latridiidae presenti in Italia meridionale e Sicilia. Nella seconda colonna, denominata "Checklist" viene riportata la distribuzione desunta dalla Checklist dei Coleotteri italiani (Poggi, 1995, fasc.56: 9-10 e 15-17).
Spiegazione dei simboli.!: materiale esaminato; A: Angelini, 1986, 1988, 1991, 1996; AM: Angelini & Montemurro, 1986; B: Binaghi, 1946; F: Fancelllo, 1985; H: Horion, 1961; L: Luigioni, 1929; LPT: Lundberg, Palm & Trottesdam, 1987a e 1987b; P: Porta, 1929 e 1949; R: Ragusa, 1893; V: Vincent, 1990; Z: Zampetti, 1979.

Taxa	Checklist	Campania	Puglia	Basilicata	Calabria	Sicilia
MEROPHYSIIDAE						
Holoparamecus atomus Ragusa, 1888	E/ Si					L
Holoparamecus bertouti Aubé, 1861	Si Sa					! . R
Holoparamecus caularum (Aubé, 1843)	N S Si Sa	L	!	! AM	!	P
Holoparamecus depressus Curtis, 1833	N S Si			!		L
Holoparamecus niger (Aubé, 1843)	S Si Sa	L	! A	! AM	!	! L
Holoparamecus punctatulus Reitter, 1908	E/ S		L			
Holoparamecus ragusae Reitter, 1875	N Si Sa			!		! L
Holoparamecus singularis (Beck, 1817)	N S Si Sa	P	P	! P	P	L
Cholovocera attae (Kraatz, 1858)	S Sa		!			
Cholovocera fleischeri (Reitter, 1902)	S		!	!		LPT
Cholovocera formicaria Motschulsky, 1838	N S Si Sa		! L		! L	! L
Cholovocera punctata Markel, 1844	N S Si	L		!	L	! L
Merophysia formicaria Lucas, 1852	N? S Si Sa		!		L	! R
Merophysia oblonga Kiesenwetter, 1872	S Si		! L	!	! L	L
Merophysia sicula Kiesenwetter, 1872	S Si Sa					L
Merophysia striatella Reitter, 1890	S		!			
LATRIDIIDAE						
Metophthalmus niveicollis intermedius Binaghi, 1946	E/ S Si	B	B			B
Metophthalmus ragusae Reitter, 1875	Si Sa					L
Metophthalmus siculus Binaghi, 1946	E/ Si					B
Metophthalmus cfr.solarii Binaghi, 1946	E/ N			!	!	
Revelieria genei (Aubé, 1850)	S Sa				!	
Latridius anthracinus Mannerheim, 1844	N S		!	! A		
Latridius brevicollis (C.G.Thomson, 1868)	S		! A	! AM	! A	!
Latridius consimilis Mannerheim, 1844	N S		!	!	! A	
Latridius minutus (Linné, 1767)	N S Si Sa	! L	! L	! L	! L	L
Latridius pseudominutus (Strand, 1958)	S		!		!	
Enicmus atriceps Hansen, 1962	S				!	
Enicmus brevicornis (Mannerheim, 1844)	N S Si Sa	L	! F	! AM	! F	! L
Enicmus fungicola C.G.Thomson, 1868	N S		! A	! AM	!	!
Enicmus histrio Joy et Tomlin, 1910	N S			! AM	!	LPT
Enicmus rugosus (Herbst, 1793)	N S Si Sa	L	! L	! L	! L	L
Enicmus testaceus (Stephens, 1830)	N S Sa	!	! A	! L	! A	!
Enicmus transversus (G.A.Olivier, 1790)	N S Si Sa	! L	! L	! L	! L	! L
Dienerella anatolica (Mannerheim, 1844)	N? S Si Sa	! L	! L	! L	! L	L
Dienerella angelinii Rücker, 1998		!		!	!	
Dienerella clathrata (Mannerheim, 1844)	N S				!	L
Dienerella corsica Vincent, 1990	S		!			
Dienerella elegans (Aubé, 1850)	N S Sa				!	!
Dienerella elongata (Curtis, 1830)	N S Sa	L	! L	! L	! L	LPT
Dienerella filiformis (Gyllenhal, 1827)	N S	P	L	! P	P	

(segue)

Taxa	Checklist	Campania	Puglia	Basilicata	Calabria	Sicilia
Dienerella parilis (Rey, 1889)	N S	!	! A	! A	! A	!
Dienerella pilifera (Reitter, 1875)	N Si Sa					L
Dienerella ruficollis (Marsham, 1802)	N S Si Sa	L	! L	L	L	L
Dienerella separanda (Reitter, 1887)	S Si Sa					L
Dienerella siciliana Vincent, 1990	E/ S Si					V
Adistemia watsoni (Wollaston, 1871)	N S Si		!			L
Stephostethus alternans (Mannerheim, 1844)	N S				!	
Stephostethus angusticollis (Gyllenhal, 1827)	N S Sa	L		!	!	! LPT
Stephostethus pandellei (Brisout, 1863)	N S	L				
Stephostethus productus (Rosenhauer, 1856)	S	L	L	! AM	! L	P
Cartodere constricta (Gyllenhal, 1827)	N S Si Sa	L	L	L	! L	L
Cartodere nodifera (Westwood, 1839)	N S Si Sa	! L	! L	L	! L	! L
Corticaria n.sp. (Rücker i.l.) (=crenulata Gyll., pars)	N S Si Sa		! L	! AM		P
Corticaria cucujiformis Reitter, 1880	S Sa		! !	AM		
Corticaria elongata (Gyllenhal, 1827)	N S Si Sa	L	! L	! L	L	L
Corticaria fagi Wollaston, 1854				! A		
Corticaria ferruginea Marsham, 1802	N S Sa				L	
Corticaria fulva (Comolli, 1837)	N S Si Sa	L	! L	! L	L	L
Corticaria illaesa Mannerheim, 1844	N S Sa	L				
Corticaria longicollis (Zetterstedt, 1838)	N S?			!		
Corticaria obscura Brisout, 1863	N S Sa		!	! L	! A	! LPT
Corticaria pineti Lohse, 1960	N S		! A	! AM		
Corticaria pubescens (Gyllenhal, 1827)	N S Sa	L	! L	! L	! L	
Corticaria saginata Mannerheim, 1844	N S Si			!		L
Corticaria serrata (Paykull, 1798)	N S Si Sa	L	! L	! L	! L	L
Corticaria solarii Reitter, 1904	E/S	L				
Corticaria weisei Reitter, 1875	N S		L			
Cortinicara gibbosa (Herbst, 1793)	N S Si Sa	L	! L	! L	! L	L
Corticarina fulvipes (Comolli, 1837)	N S Si Sa		! L	! AM	!	! L
Corticarina fuscula (Gyllenhal, 1827)	N S		H	!		
Corticarina similata (Gyllenhal, 1827)	N S	L		!	!	
Corticarina truncatella (Mannerheim, 1844)	N S	H	H	H	H	
Melanophthalma curticollis (Mannerheim, 1844)	N S		!	!		
Melanophthalma distinguenda (Comolli, 1837)	N S Si Sa?	L	! L	! L	! L	! L
Melanophthalma fuscipennis (Mannerheim, 1844)	N S Si Sa	L	! L	! L	! L	! L
Melanophthalma maura Motschulsky, 1866	N S Sa		! Z	!	!	
Melanophthalma sericea (Mannerheim, 1844)	S		!	! AM		
Melanophthalma suturalis (Mannerheim, 1844)	S		!	!	! A	! R
Melanophthalma taurica (Mannerheim, 1844)	N S Sa	!	Z	! F	! A	! LPT
Migneauxia crassiuscula (Aubé, 1850)	N S Si?Sa?	L	! L	! L	! L	L
Migneauxia inflata (Rosenhauer, 1856)	N? Si Sa					L
Migneauxia lederi Reitter, 1875				!	!	!

(Rücker, 1980: 151). Liguria, Friuli-V.Giulia, Emilia, Italia centrale, Campania, Sardegna, Corsica e Malta (Luigioni, 1929: 529), Sicilia (Porta, 1929: 213), Basilicata (Angelini & Montemurro, 1986: 576, Policoro), Calabria (Angelini, 1986: 78, Sila), Puglia (Angelini, 1988: 42, Gargano).

Holoparamecus depressus Curtis, 1833 (= *H. kunzei* Aubé, 1843)

MATERIALE ESAMINATO: **Basilicata**: Policoro (MT), 3 exx., 15.VII.1986, LCA.

NOTE ECOLOGICHE: Vaglio di foglie e detriti in lettiera di Salix.

DISTRIBUZIONE GEOGRAFICA: Europa centrale e meridionale, terre del Mediterraneo (Rücker, 1980: 153). Piemonte, Emilia, Toscana, I. Elba, Sicilia (Trapani) e Corsica (Luigioni, 1929: 529), Basilicata!

Holoparamecus niger (Aubé, 1843)

MATERIALE ESAMINATO: **Puglia:** Gargano, Monte S. Angelo (FG), 150 exx., 29.IV.1978; Foresta Umbra, Valle Tesoro, 3 exx., 29.IV.1978; Bosco Spigno (FG), 7 exx., IV-V.1982; foce fiume Lato (TA), 8 exx., 11.XI.1990 e 18.IV.1993; San Basilio (TA), querceta, 1 ex., 31.III.1994; Taranto dint., prato, 5 exx., 24.XII.1994, LCA; Circummarpiccolo (TA), 40 exx., varie date e anni, LCAM; S. Pietro in Bevagna (TA), 4 exx., 12.VIII.1978; Bari, Campus, 17 exx., V.1988; Bari, 4 exx., IX.1983; Sammichele (BA), 1 ex., 6.X.1984; Sava, Torricella (TA), 2 exx., 22.VII.1989, LDCA; **Basilicata:** F. Basento, Km.2 dalla foce, 6 exx., 26.I.1975 e 18.IV.1993; Oasi WWF Lago di San Giuliano, 10 exx., 1.XI.1992; Policoro (MT), 70 exx., tutto l'anno, LCAM; Mass. Pollino, M.Caramola, L. dell'Erba (PZ), 1300 m, 1 ex., V.1993, LCA; **Calabria:** Aspromonte, Gerace (RC), Zomino, 4 exx., 15.XI.1993, LSCA; Antonimina (RC), lecceta, 1 ex., 3.V.1993, LASCA; Sicilia: Aci Castello (CT), 3 exx., 26.XI.1993, LSCA.

NOTE ECOLOGICHE: Specie raccolta negli ambienti più disparati quali sterco bovino, vaglio di detriti vegetali, detriti fluitati, lettiera di latifoglie.

DISTRIBUZIONE GEOGRAFICA: Svizzera, Italia, Sicilia, Corsica, Spagna, I. Canarie, Africa settentrionale, centrale e orientale (Rücker, 1980: 152). Toscana, I. Elba, Lazio, Campania, Sicilia, Sardegna, Corsica e Malta (Luigioni, 1929: 529), Basilicata (Angelini & Montemurro, 1986: 576, Policoro), Puglia (Angelini, 1988: 42, Gargano), Calabria!

Holoparamecus ragusae Reitter, 1875

MATERIALE ESAMINATO: **Basilicata:** Policoro (MT), 1 ex., 22.VII.1990, LCA; **Sicilia:** Gela (CL), 2 exx., 14.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio di detriti ai margini di paludi.

DISTRIBUZIONE GEOGRAFICA: Belgio, Francia meridionale, Italia, Sicilia, Sardegna e Corsica (Rücker, 1980: 152). Liguria, Sicilia (Palermo), Sardegna e Corsica (Luigioni, 1929: 529), Basilicata!

Holoparamecus singularis (Beck, 1817)

MATERIALE ESAMINATO: **Basilicata:** Policoro (MT), 11 exx., 13.V.1978, 2.XII.1979 e 18.X.1987, LCA.

NOTE ECOLOGICHE: Vaglio in lettiera di *Salix*.

DISTRIBUZIONE GEOGRAFICA: Europa centrale, terre del Mediterraneo, Africa, Asia Minore, Caucaso e India (Rücker, 1980: 152). Italia settentrionale, Toscana, Abruzzo, Sicilia, Sardegna, Corsica e Malta (Luigioni, 1929: 529), tutta Italia (Porta, 1929: 213).

Cholovocera attae (Kraatz, 1858)

MATERIALE ESAMINATO: **Puglia:** Casamassima (BA), 3 exx., 4.IV.1983; Bari, 29 exx., XI.1984, LDCA.

NOTE ECOLOGICHE: Sotto pietre in associazione con Formicidae, come le altre specie congeneri.

DISTRIBUZIONE GEOGRAFICA: Sud Europa, Grecia e nord Africa (Rücker, 1980: 144); specie nuova per la fauna italiana, già inclusa nella Checklist (Poggi, 1995: 9) sia sulla base del presente materiale che di altro proveniente dalla Sardegna; Puglia!

Cholovocera fleischeri (Reitter, 1902)

MATERIALE ESAMINATO: **Puglia:** Rutigliano (BA), 2 exx., 8.V.1989, LDCA. **Basilicata:** Policoro (MT), 1 ex., 15.VII.1989, LCA.

NOTE ECOLOGICHE: Sotto pietre in nido di formiche non identificate a Rutigliano, in ceppo di salice con formiche non identificate a Policoro.

DISTRIBUZIONE GEOGRAFICA: Dalmazia, Iugoslavia (Rücker, 1980: 144), Sicilia (Lundberg, Palm & Trottesdam, 1987b: 123); specie nuova per la penisola, già inclusa nella Checklist (Poggi, 1995: 9) sulla base del presente materiale; Puglia! Basilicata!

Cholovocera formicaria Motschulsky, 1838

MATERIALE ESAMINATO: **Puglia:** Rutigliano (BA), 8 exx., XI.1991, LDCA; **Calabria:** Aspromonte, S. Luca (RC), torr.S. Venere, prato, 10 exx., 16.XI.1993, LSCAS; Africo Nuovo (RC), prato, 4 exx., 20.XI.1993, LSCA; **Sicilia:** M.ti Madonie, Castelbuono (PA), 1000 m, 1 ex., 9.VI.1991; Isnello (PA), 550 m, 45 exx., 9.VI.1991, LCA.

DISTRIBUZIONE GEOGRAFICA: Francia meridionale, Grecia, Asia Minore, Algeria (Rücker, 1980: 143). Liguria, Toscana, Umbria, Lazio, Puglia, Calabria, Sicilia, Sardegna (Luigioni, 1929: 528).

Cholovocera punctata Märkel, 1844

MATERIALE ESAMINATO: **Basilicata:** Accettura, bosco Gallipoli-Cognato, 1000 m, querceta, 17.X.1992, III-XI.1993, LCA; **Sicilia:** San Vito lo Capo (TP), pend. M. Sparangio, 600 m, 1 ex., 1.III.1994; Sambuca di Sicilia (AG), Misilifurme, 4 exx., 11.XII.1993, LCS; Erice (TP), 18 exx., 10.XII.1993; Castellammare del Golfo (TP), Castello Baia, 30 exx., 9.XII.1993; Aci Castello (CT), 3 exx., 26.XI.1993; Castelvetrano (TP), Vallone Zangara, 3 exx., 11.III.1993; Mazara del Vallo (TP), Gorghi Tondi, lecceta, 1 ex., 10.XII.1993; Castelluzzo (TP), pend. M. Cofano, 1 ex., 2.III.1991, LSCA; M.ti Madonie, Isnello (PA), 550 m, 12 exx., 8.V.1991; M.ti Nebrodi, Portella Femminamorta (ME), 1 ex., 11.VI.1991; Mistretta (ME), 1000 m, querceta, 2 exx., 10.VI.1991, LCA.

DISTRIBUZIONE GEOGRAFICA: Spagna, Francia meridionale, Corsica Sardegna, Sicilia,

Algeria e Tunisia (Rücker, 1980: 144). Liguria, Toscana, I. Capraia, Lazio, Campania, Calabria, Sicilia (Luigioni, 1929: 528); comune in Sicilia (Ragusa, 1893: 239); Basilicata!

Merophysia formicaria Lucas, 1852

MATERIALE ESAMINATO: **Puglia:** Bari, 8 exx., XI.1984; Valenzano (BA), 1 ex., 8.X.1983; Torre Bianca (TA), 3 exx., 22.X.1967; Rutigliano (BA), 4 exx., XI.1991, LDCA; **Sicilia:** Erice (TP), 1 ex., 10.XII.1993, LSCA; M.ti Madonie, Isnello (PA), 550 m, 20 exx., 9.VI.1991, LCA.

NOTE ECOLOGICHE: Sotto pietre in compagnia di formiche, come le altre specie congeneri.

DISTRIBUZIONE GEOGRAFICA: Europa sud-occidentale, Sardegna, Sicilia, nord Africa (Rücker, 1980: 148). Toscana, Calabria, Sardegna, Corsica e Malta (Luigioni, 1929: 529), Sicilia (Ragusa, 1893: 240, sub v.sicula Kiesenwetter), Puglia!

Merophysia oblonga Kiesenwetter, 1872

MATERIALE ESAMINATO: **Puglia:** Casamassima (BA), 1 ex., XI.1984; Castellana Grotte (BA), 1 ex., 25.X.1992; Castel del Monte (BA), 1 ex., 21.VII.1962, LDCA; Francavilla F. (BR), 5 exx., 5.II.1994, LCA; **Basilicata:** Policoro (MT), 2 exx., III.1990, LDCA; Accettura (MT), bosco Gallipoli-Cognato, 1000 m, querceta, 12 exx., 3.IV.1993 e 6.XI.1993, LCA; **Calabria:** Aspromonte, S. Luca (RC), torr.S. Venere, prato, 34 exx., 16.XI.1993, LSCAS; Africo Nuovo (RC), 2 exx., 17.XI.1993; Platì (RC), Vall.Vaccarà, 4 exx., 18.XI.1993, LSCA.

DISTRIBUZIONE GEOGRAFICA: Grecia, Corfù e Asia Minore (Rücker, 1980: 147). Puglia (M.Gargano), Calabria e Sicilia (Luigioni, 1929: 528), Basilicata!

Merophysia striatella Reitter, 1890

MATERIALE ESAMINATO: **Puglia:** Altamura (BA), 3 exx., 24.IV.1983, LDCA; str. Monopoli-Alberobello, Km 5 da Monopoli (BA), 1 ex., 31.III.1986, LLCA.

DISTRIBUZIONE GEOGRAFICA: Crimea (Rücker, 1980: 147). Specie nuova per la fauna italiana, già inclusa nella Checklist (Poggi, 1995: 10) sulla base del presente materiale; Puglia!

Latridiidae

Metophthalmus cfr. *solarii* Binaghi, 1946

MATERIALE ESAMINATO: **Basilicata:** Abriola, La Maddalena (PZ), 1400 m, faggeta, 2 exx., 7-9.VII.1987; Pietrapertosa, M.Impiso (PZ), 1200 m, querceta, 7 exx., 6.VII.1987 e 21.VI.1988, LCA; **Calabria:** Aspromonte, Piani di Carmelia (RC), 1000 m, faggeta, 2 exx., 25.VI.1987; dint.S. Luca (RC), 300 m, 1 ex., 24.VI.1987, LCA.

NOTE ECOLOGICHE: Vaglio di foglie in lettiera di *Quercus* e *Fagus*.

DISTRIBUZIONE GEOGRAFICA: Specie descritta e nota su esemplari provenienti dalla Liguria (Nava) e Alpi Marittime (Val Pesio) (Binaghi, 1946: 22). I presenti reperti ne ampliano notevolmente la diffusione nella penisola. Circa 600 esemplari riferibili a questo genere e provenienti dall'Italia meridionale, dalla Sicilia e dalla Sardegna sono ancora da identificare con

certezza, stante la concreta possibilità di individuare nuove specie. Basilicata! Calabria!
Revelieria genei (Aubé, 1850)

MATERIALE ESAMINATO: **Calabria:** Aspromonte, S. Luca (RC), str.per Sant.Polsi, 740 m, 1 ex., 13.X.1993, LCA; Ciminà (RC), 650 m, lecceta, 2 exx., 12.X.1993; Antonimina (RC), 800 m, base roccia in lecceta, 1 ex., 3.V.1993, LASCA; tra Gerace e San Luca (RC), 1 ex., 13.X.1993, LCM.

NOTE ECOLOGICHE: Vaglio di foglie in lettiera molto profonda di *Quercus ilex*.

DISTRIBUZIONE GEOGRAFICA: Terre del Mediterraneo. Toscana (M.Argentario), I. Giglio, Lazio, Sardegna e Corsica (Luigioni, 1929: 532), Calabria!

Latridius anthracinus Mannerheim, 1844

MATERIALE ESAMINATO: **Puglia:** Gargano, Foresta Umbra (FG), 1 ex., 29.IV.1978; Mesagne, bosco Preti (BR), 1 ex., XII.1989; Francavilla F. (BR), 4 exx., 15.I.1990, LCA; Manduria (TA), 1 ex., 5.XI.1967; S. Pietro in Bevagna (TA), 1 ex., 28.VII.1969; Cassano Murge (BA), 1 ex., 2.X.1981; Bari, campus, 1 ex., V.1985, LDCA; Monopoli, Impalata (BA), 3 exx., 21.I.1990, LLCA; **Basilicata**: Ris. nat. WWF Lago di Pignola (PZ), 700 m, 4 ex., 15.XI.1991 e 14-31.VII.1991; Accettura, bosco Gallipoli (MT), 790 m, 1 ex., 1.VII.1989, LCA; Mass. Pollino, Piano Ruggio, 1500 m, 1 ex., 12.VI.1977, LCM.

NOTE ECOLOGICHE: Vaglio di detriti vegetali o in lettiere di Fagus o Quercus; ad Accettura in trappola con ossa e aceto, a Pignola anche in trappola luminosa.

DISTRIBUZIONE GEOGRAFICA: Nord e centro Europa (Horion, 1961: 17). Alpi Marittime, Piemonte e Trentino-A.Adige (Luigioni, 1929: 529, sub Enicmus minutus v.anthracinus Mannerheim), Basilicata (Angelini, 1988: 78, Mass. Pollino), Puglia!

Latridius brevicollis (Thomson, 1868)

MATERIALE ESAMINATO: **Puglia:** Gargano, bosco Sfilzi (FG), 550-600 m, 14 exx., 15.V.1982; Foresta Umbra, Valle Tesoro (FG), 18 exx., IV-VII.1978-1986; bosco Spigno (FG), 850-950 m, 1 ex., 16.V.1982, LCA. **Basilicata:** Accettura, bosco di Montepiano (MT), 1 ex., 26.VI.1989; Policoro (MT), 6 exx., I-II.1979 e 22.VII.1990; Abriola, M.Pierfaone (PZ), 1500 m, 13 exx., 6.VI.1983; Mass. Pollino, Colle dell'Impiso (PZ), 1570 m, 3 exx., 21.VII.1987; S. Severino Luc. (PZ), 800 m, bosco Magnano, querceta, 2 exx., 1.XI.1990 e 24.VII.1990, funghi e legno in faggeta, LCA; **Calabria:** Sila, Silvana Mansio (CS), 1350 m, 1 ex., 13.VII.1981; Aspromonte, str.Sant'Eufemia-Piani Aspromonte (RC), 700-800 m, lecceta, 1 ex., 21.VI.1993, LCA; Sant'Eufemia (RC), Fiumara Castra, 650 m, lecceta, 18 exx., 31.V.1993, LASCA; **Sicilia:** Montalbano E. (ME), bosco Malabotta, 900 m, tronco Fagus, 3 exx., 3.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio di foglie e legno marcio in lettiera profonda di *Fagus*, *Ulmus* e *Quercus*.

DISTRIBUZIONE GEOGRAFICA: Nord e centro Europa (Horion, 1961: 19). Abruzzo e App. Romano (Luigioni, 1929: 532), Basilicata (Angelini & Montemurro, 1986: 577, Policoro), Puglia (Angelini, 1988: 43, Gargano), Calabria (Angelini, 1991: 210, Sila), Sicilia!

Latridius consimilis Mannerheim, 1844

MATERIALE ESAMINATO: **Puglia:** Manduria (TA), San Pietro in Bevagna, 1 ex., 23.VII.1969, LDCA;

Basilicata: Abriola, M.Pierfaone (PZ), 1500 m, faggeta, 4 exx., 6.VI.1983; Abriola (PZ), La Maddalena, 1200 m, querceta, 2 exx., 2.VI.1991, LCA; **Calabria:** Mass. Pollino, Colle del Dragone (CS), 1600 m, faggeta, 2 exx., 12.VI.1977, LCA.

NOTE ECOLOGICHE: Vaglio di detriti o foglie morte in lettiera molto profonda di *Fagus* o *Quercus*.

DISTRIBUZIONE GEOGRAFICA: Nord e centro Europa, Caucaso, Siberia, Alaska (Horion, 1961: 15). Piemonte, Friuli-V. Giulia, Toscana, Abruzzo, App.Romano (Luigioni, 1929: 529, sub *Enicmus*), Calabria (Angelini, 1988: 78, Mass. Pollino), Puglia! Basilicata!

Latridius minutus (Linnaeus, 1767)

MATERIALE ESAMINATO: **Campania:** Cilento, Sansa (SA), bosco Centaurino, 500 m, castagneto, 2 exx., 23.VIII.1990, LCA; **Puglia:** Gargano, Foresta Umbra (FG), Valle Tesoro, 400 m, 15 exx., 31.X.1977; Francavilla F. (BR), 15 exx., 1.XI.1989 e 15.I.1990; San Basilio (TA), querceta, 3 exx., 31.XII.1994, LCA; Bari, 1 ex., V.1978; S. Giorgio (BA), 2 exx., 29.X.1968; Acquaviva (BA), 4 exx., 2.XI.1968 e 10.X.1988; Rutigliano (BA), 1 ex., 16.V.1987; Putignano (BA), 10 exx., 10.IV.1985; Valenzano (BA), 3 exx., 3.XI.1984; Sammichele (BA), 1 ex., 6.X.1984; Ginosa (TA), 2 exx., 10.V.1984; Massafra (TA), 2 exx., 17.XI.1968; S. Pietro in Bevagna (TA), 1 ex., 12.VIII.1978, LDCA; foce fiume Lato (TA), 4 ex., 20.III.1977 e 11.XI.1990; Circummarpiccolo (TA), 1 ex., 13.XII.1992, LCM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 2 exx., 31.VII.1991 e 14-31.VII.1991; Abriola, La Maddalena (PZ), 1400 m, 3 exx., 7-9.VII.1987; Pietrapertosa (PZ), 1000 m, querceta, 1 ex., 1.V.1990; Salandra Scalo (MT), str. Basentana, Km.54, trapp.aceto, 1 ex., 9.XI.1994, LCA; Mass. Pollino, Duglia (PZ), 1300 m, 4 exx., VIII.1981, LDCA; Policoro (MT), 35 exx., III-X, vari anni, LCAM; **Calabria:** Sila, Camigliatello, Fossiata (CS), 1400 m, 16 exx., 30.VII.1978; Camigliatello (CS), 1300 m, 15 exx., VI-VII.1978 e 10.VII.1979; M.Botte Donato, pendici E (CS), 1 ex., VII.1978; Bosco Gariglione (CZ), 1400 m, 20 exx., 14.VII.1981; Aspromonte, Piani Aspromonte (RC), 1000 m, pioppeto, 1 ex., 21.VI.1993; Gambarie (RC), M.Basilicò, 1300 m, faggeta, 1 ex., 1.V.1993, LCA.

NOTE ECOLOGICHE: Vaglio di detriti vegetali e lettiera di latifoglie e conifere, anche in trappole luminose o ad aceto.

DISTRIBUZIONE GEOGRAFICA: Cosmopolita, comune in tutta Europa (Horion, 1961: 17). Tutta Italia e Isole (Luigioni, 1929: 531, sub Enicmus).

Latridius pseudominutus (Strand, 1958)

MATERIALE ESAMINATO: **Puglia:** Valenzano (BA), 1 ex., 8.X.1983, LDCA. **Calabria:** Aspromonte, Piani Carmelia (RC), 1000 m, faggeta, 1 ex., 25.VI.1987, LCA.

NOTE ECOLOGICHE: Vaglio in lettiera di *Quercus* e *Fagus*.

DISTRIBUZIONE GEOGRAFICA: Norvegia, Svezia, Gran Bretagna, Caucaso (Horion, 1961: 19), Danimarca (Hansen, 1996: 197), Finlandia, K-Riss (Lundberg, 1995, nr. 3138), Carelia russa (Silfverberg, 1992: 56). Specie nuova per la fauna italiana, già inclusa nella Checklist (Poggi, 1995: 15) sulla base dei presenti dati; Puglia! Calabria!

Enicmus atriceps Hansen, 1962

MATERIALE ESAMINATO: **Calabria:** Aspromonte, Piani Carmelia (RC), 1000 m, faggeta, 2 exx., 25.VI.1987; Piani Aspromonte (RC), 1000-1100 m, faggeta, 1 ex., 12.VII.1988, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte e legno marcio in lettiera profonda di *Fagus*.
DISTRIBUZIONE GEOGRAFICA: Specie descritta su esemplari provenienti dalla Germania e Danimarca, che risulta nuova per la fauna italiana; già inclusa nella Checklist (Poggi, 1995: 15) sulla base dei presenti dati; Calabria!

Enicmus brevicornis (Mannerheim, 1844)

MATERIALE ESAMINATO: **Puglia:** Gargano, Foresta Umbra, Torre Palermo (FG), 3 exx., 15.V.1982; Foresta Umbra, Valle Tesoro (FG), 420 m, 22 exx., V-VII.1982; Foresta Umbra, bosco e fonte Sfilzi (FG), 420 m, 26 exx., V-VII.1982 e 13.VII.1991; Bosco Spigno (FG), 850-950 m, 13 exx., 16.V.1982; Mesagne, bosco Preti (BR), 1 ex., 26.IV.1977, LCA; **Basilicata:** Policoro (MT), 3 exx., IV.1979; Mass. Pollino, Piano Ruggio (PZ), 1510-1590 m, faggeta, 2 exx., 7.VI.1987; Serra del Prete, pendici NE (PZ), 1600 m, 2 exx., 7.VI.1987; S. Severino Luc. (PZ), 800 m, bosco Magnano, funghi e legno alla base di *Acer*, 6 exx., 8.VIII.1993, LCA; **Calabria:** Aspromonte, str.Sant'Eufemia-Piani Aspromonte (RC), 700-800 m, lecceta, 1 ex., 21.VI.1993, LCA; **Sicilia:** Montalbano E. (ME), bosco Malabotta, 900 m, tronco *Fagus*, 2 exx., 3.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio di foglie e legno marcio in lettiera di latifoglie.

DISTRIBUZIONE GEOGRAFICA: Tutta Europa, nord Africa (Horion, 1961: 20). Alpi Marittime, Liguria, Piemonte, Lombardia, Emilia, Toscana, Abruzzo, Campania, Sicilia, Sardegna e Corsica (Luigioni, 1929: 532), Puglia (Gargano) e Calabria (Sila) (Fancello, 1985: 24), Basilicata (Angelini & Montemurro, 1986: 577, Policoro).

Enicmus fungicola Thomson, 1868

MATERIALE ESAMINATO: **Puglia:** Gargano, bosco Sfilzi (FG), 550-600 m, 1 ex., 15.V.1982; Foresta Umbra (FG), 800 m, 1 ex., 16.V.1982, LCA; **Basilicata:** Policoro (MT), 3 exx., III.1979, LCA; **Calabria:** Aspromonte, Gambarie (RC), 1300 m, 1 ex., 11.VII.1988, LCA; **Sicilia:** Montalbano E. (ME), bosco Malabotta, 900 m, tronco Fagus, 1 ex., 3.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte e legno marcio in lettiera di Fagus sul Gargano, in Aspromonte e Sicilia, di Ulmus a Policoro.

DISTRIBUZIONE GEOGRAFICA: Nord e centro Europa (Horion, 1961: 22). Trentino-A.Adige (Luigioni, 1929: 532; Peez & Kahlen, 1977: 293), Basilicata (Angelini & Montemurro, 1986: 577, Policoro), Puglia (Angelini, 1988: 43, Gargano), Calabria! Sicilia!

Enicmus histrio Joy & Tomlin, 1910

MATERIALE ESAMINATO: **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 1 ex., VI.1991; Abriola, M.Pierfaone (PZ), 1500 m, 1 ex., 6.VI.1983; foce fiume Basento (MT), 2 exx., 26.I.1979; Policoro (MT), 4 exx., I.1977 e 26-29.VI.1988; Mass. Pollino, Piano Ruggio (PZ), 1550 m, 1 ex., 6.VI.1982, LCA; **Calabria:** Aspromonte, dint.S. Luca (RC), 500 m, 1 ex., 13.X.1993, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in lettiera di *Fagus*, *Salix* e *Ulmus*, anche in detriti fluitati; attratto da trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Nord e centro Europa (Horion, 1961: 22). Alpi Marittime, Piemonte, Lombardia, Emilia e Marche (Luigioni, 1929: 532), Trentino-A. Adige (Peez & Kahlen, 1977: 293), Basilicata (Angelini & Montemurro, 1986: 577, Policoro), Sicilia (Lundberg, Palm & Trottesdam, 1987a: 48), Calabria!

Enicmus rugosus (Herbst, 1793)

MATERIALE ESAMINATO: **Puglia:** Monopoli (BA), 1 ex., 11.X.1982, LDCA; Gargano, Foresta Umbra (FG), bosco Manatecco, 450 m, faggeta, 35 exx., 9.VII.1991; Foresta Umbra (FG), str.per Monte Sant'Angelo, 690 m, 2 exx., 10.VII.1991, LCA; **Basilicata:** Rionero, M.Vulture (PZ), 1000 m, 1 ex., 20.VI.1988; Rionero, L.Monticchio (PZ), 660 m, 1 ex., 19.VI.1988; Pietrapertosa, M.Impiso (PZ), 19 exx., 21.VI.1988 e 1.V.1990; Policoro (MT), 80 exx., tutto l'anno; Mass. Pollino, Cugno dell'Acero (PZ), 1400 m, 3 exx., VII.1985; Piano Ruggio (PZ), 1550 m, 1 ex., 31.VIII.1982; Coppola di Paola, pendici NE (PZ), 1600 m, 12 exx., 19.VII.1979 e 21.VII.1983; Duglia (PZ), 1350 m, 1 ex., 19.VI.1985; San Severino Luc., bosco Magnano (PZ), 700 m, 6 exx., 14.VII.1989 e 30.IX.1990; Accettura, bosco Montepiano (MT), 1000 m, 21 exx., 14.V.1989 e 26.VI.1989, LCA; Accettura (MT), bosco Gallipoli-Cognato, 1000 m, querceta, 1 ex., 7.XI.1993, LCM; Corleto Pert., Timpa Polveracchio (PZ), 3 exx., 9.IV.1989; M.Sirino (PZ), 1500 m, 1 ex., 28.VII.1989; M.Sirino (PZ), Km.2 dalla sorg., 1100 m, faggeta, 1 ex., 9.VIII.1990, LCA; Abriola (PZ), La Maddalena, 1400 m, faggeta, 5 exx., 7-9.VII.1987 e 22.VII.1991, 1200 m, querceta, 5 exx., 2.VI.1991; Rifreddo (PZ), 1 ex., 23.IX.1987, LDCA; **Calabria:** M.ti Orsomarso, Grisolia, loc.Pantanelle (CS), 700 m, 1 ex., 4.VIII.1989; Sila, Fossiata (CS), 1350 m, 10 exx., 14.VII.1979; M.Volpintesta (CS), 11 exx., VI.1978 e 13.VII.1981; Lorica (CS), 1300 m, 14 exx., VI-VII.1981; L.Ampollino (CS), 1300 m, 3 exx., 14.VII.1981; Vill.Mancuso (CZ), 1 ex., 14.VII.1981; bosco Gariglione (CZ), 1500 m, 12 exx., 14.VII.1981; Aspromonte, Piani Carmelia (RC), 1000 m, 3 exx., 25.VI.1987 e 14.VII.1988; dint.S Luca (RC), 500 m, 1 ex., 24.VI.1987, LCA; Sant'Eufemia d'Aspr., Fiumara Crasta, 630 m, bosco misto, 5 exx., 31.V.1993, LCAS; Antonimina (RC), 750 m, tronco in lecceta, 1 ex., 3.V.1993, LASCA.

NOTE ECOLOGICHE: Specie molto comune in lettiera di *Quercus* e *Fagus*, anche in ambienti molto secchi; raramente in boschi di conifere.

DISTRIBUZIONE GEOGRAFICA: Tutta Europa, Caucaso, Siberia, nord Africa (Horion, 1961: 23). Tutta Italia e Isole (Luigioni, 1929: 532).

Enicmus testaceus (Stephens, 1830)

MATERIALE ESAMINATO: **Campania:** Cilento (SA), M.Raialonga, ontaneto, 1 ex., 2.VII.1990, LCA; **Puglia:** Gargano, Foresta Umbra, bosco Sfilzi (FG), 550-600 m, 1 ex., 15.V.1982, 1 ex., 13.VII.1991; Foresta Umbra, lago d'Umbra (FG), 800 m, 2 exx., IV-V.1982, LCA; **Basilicata:** Abriola, M.Pierfaone (PZ), 1500 m, 1 ex., 19.VII.1983; Accettura, bosco Montepiano (MT), 1000 m, 2 exx., 26.VI.1989; Mass. Pollino, Duglia (PZ), 1300 m, 1 ex., 19.VI.1987; San Severino Luc. (PZ), 3 Km. N, castagneto, 1 ex., 30.VII.1990; San Severino Luc., bosco Magnano (PZ), 700 m, faggeta, 5 ex., 27.VII.1989, 24.VII.1990 e 8.VIII.1993; Lagonegro (PZ), 1 ex., 6.VIII.1990, sotto corteccia di Quercus, LCA; **Calabria:** Mass. Pollino, Colle del Dragone (CS), 1600 m, faggeta, 2 exx., 24.VII.1990; Sila, Vill. Racise (CZ), 1 ex., 14.VII.1981; Aspromonte, Cittanova, Zomaro (RC), 950 m, 3 exx., 23.VII.1981; dint. San Luca (RC), 300 m, 5 exx., 24.VI.1987; Gambarie (RC), M.Basilicò, 1300 m, faggeta, 1 ex., 18.VIII.1990; str.Sant'Eufemia-Piani Aspromonte (RC), 700-800 m, lecceta, 1 ex., 21.VI.1993, LCA; Cippo Garibaldi, 1300 m, faggeta, 1 ex., 17.X.1993, LCM; Sant'Eufemia (RC), Fiumara Castra, 650 m, lecceta, 2 exx., 31.V.1993, LASCA; **Sicilia**: M.ti Madonie, Piano Zucchi (PA), 1000 m, querceta, 1 ex., 7.VI.1991, LCA.

NOTE ECOLOGICHE: Vaglio di foglie in lettiera di *Fagus*, *Abies* e *Quercus*, più raramente di altre latifoglie.

DISTRIBUZIONE GEOGRAFICA: Europa, nord Africa (Horion, 1961: 24). Alpi Marittime,

Liguria, Piemonte, Emilia, Toscana, Lazio, Basilicata, Sardegna e Corsica (Luigioni, 1929: 532), Trentino-A.Adige (Peez & Kahlen, 1977: 293), Puglia (Angelini, 1988: 43, Gargano), Calabria (Angelini, 1991: 210, Sila), Campania! Sicilia!

Enicmus transversus (Olivier, 1790)

MATERIALE ESAMINATO: **Campania:** M.ti Alburni (SA), Casone d'Aresta, 1300 m, faggeta, 1 ex., 4.VIII.1990; bosco Corleto (SA), 1100 m, faggeta, 1 ex., 4.VIII.1990, LCA;**Puglia**: Palo del Colle (BA), 2 exx., XI.1983; Casamassima (BA), 3 exx., 8.IX.1982 e 13.II.1983; Noci (BA), 2 exx., IX.1981; Manduria (TA), 1 ex., 5.VI.1969; Sammichele (BA), 1 ex., 2.IV.1985; Castellana Grotte (BA), 1 ex., XI.1989; Gioia del Colle (BA), 14 exx., 19.X.1980 e 26.VIII.1982; Bari, campus, 4 exx., V.1984; Rutigliano (BA), 1 ex., 4.X.1984; Monopoli (BA), 34 exx., 11.X.1982; Gravina di Puglia (BA), querceta, 41 exx., 19.X.1984 e 2.IX.1983; Acquaviva (BA), 2 exx., 13.X.1980 e16.X.1988; San Pietro in Bevagna (TA), 1 ex., 27.IV.1985, LDCA; Gargano, Foresta Umbra (FG), 800 m, 1 ex., 6.V.1982; Torre Sfinale (FG), 1 ex., 30.IV.1978; Foresta Umbra (FG), str.per Monte Sant'Angelo, Mass.Lombardo, 650 m, querceta, 1 ex., 10.VII.1991; fiume Lato, Km.10 dalla foce (TA), 1 ex., 2.I.1977; Francavilla F. (BR), 8 exx., 5.XII.1982 e 24.XII.1989; Mesagne, bosco Preti (BR), 1 ex., XII.1989; Ris. nat. Le Cesine (LE), rive palude, 5 exx., 11.V.1993 e 8.I.1994, LCA; Circummarpiccolo (TA), 25 exx., varie date e anni; S. Basilio (TA), querceta, 14 exx., 16.XI.1986, 17.IV.1983 e 31.XII.1994; Martina F. , bosco Pianelle (TA), 9 exx., 28.V.1988 e 17.XII.1989; foce F. Lato (TA), 5 ex., 11.XI.1990 e 18.IV.1993, LCAM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 12 exx.,9.V.1991 e 23.VI.1991; Pietrapertosa, M.Impiso (PZ), 1200 m, 9 exx., 6.VII.1987 e 21.VI.1988; Serra Rifreddo (PZ), 1130 m, 19 exx., 23.VI.1988; Calvello, Mass.La Banca (PZ), 1300 m, 5 exx., 22.VI.1988; Rifreddo (PZ), 1 ex., 21.V.1984; Abriola, La Maddalena (PZ), 1400 m, 1 ex., 17.VII.1983; Abriola, M.Pierfaone (PZ), 1500 m, 1 ex., 6.VI.1983; Abriola, Timpa del Giogo (PZ), 1300 m, 1 ex., 22.VI.1988; Sellata (PZ), 1250 m, 1 ex., 23.VI.1988; Mass. Pollino, Serra del Prete, pendici NE (PZ), 1550 m, 5 exx., 4.VII.1985 e 7.VI.1987; Corleto Perticara (PZ), 3 exx., 26.VI.1989; Rionero, M.Vulture (PZ), 700-1100 m, 55 exx., 10.VII.1987 e 19.VI.1988, 1000 m, 9 exx., 1.VI.1990 e 1.VI.1991; Rionero, L.Monticchio (PZ), 700 m, 40 exx., 10.VII.1987; Accettura, bosco Gallipoli-Cognato (MT), 1000 m, 4 exx., 14.V.1989 e 26.VI.1989; Accettura, M. Croccia (MT), 1080 m, 30 exx., 28.VIII.1989; Policoro (MT), 110 exx., tutto l'anno; Metaponto (MT), 1 ex., 24.IV.1977; M.Sirino (PZ), Timpa Pellinera, 1100 m, faggeta, 1 ex., 9.VIII.1990; Ferrandina (MT), base lentisco, 5 exx., 2.I.1994; Pietrapertosa (PZ), 1000 m, querceta, 7 exx., 1.V.1990, LCA; Tito (PZ), 1 ex., XI.1989; Matera, 1 ex., 6.IX.1988, LDCA; Oasi WWF Lago di San Giuliano (MT), 100 m, Ponte Cagnolino, trappola luminosa, 6 exx., 1.III.1992, LCM, 6 exx., 8.XII.1992, LCA; **Calabria:** M.ti Orsomarso, Valle Argentino (CS), 2 exx., 1.VII.1988; Grisolia (CS), loc.Pantanelle, 700 m, faggeta, 2 exx., 13.VIII.1990 e 4.VIII.1989; Buonvicino (CS), 6 exx., 7.VIII.1989 e 12.VII.1992; Sila, M.Paleparto (CS), 1350 m, 12 exx., VI.1978; M.Montenero (CS), 1400 m, 1 ex., 6.VII.1988; Catena Costiera, Fuscaldo (CS), 900 m, 8 exx., 5.VII.1988, LCA; L.Trifoglietti (CS), 1300 m, 1 ex., LASCA; Aspromonte, Piani Carmelia (RC), 1000 m, 11 exx., 25.VI.1987 e 21.VI.1988; Piani Aspromonte (RC), 1100 m, 12 exx., 12.VII.1988, 21.VIII.1990 e 14.VI.1991; Cittanova, Zomaro (RC), 950 m, 10 exx., 27.VII.1981, 12.VII.1988 e 17.VIII.1990; M.Montalto (RC), 1500 m, 1 ex., 23.VI.1987; dint.S. Luca (RC), 300 m, 1 ex., 24.VI.1987; San Alessio (RC), 470 m, castagneto, 1 ex., 15.X.1993; San Luca (RC), 740 m, str.per Sant.Polsi, 1 ex., 13.X.1993; Ponte S. S. 183 su torr.Vasi, 1000 m, Quercus e Alnus, 4 exx., 17.VIII.1990; str. Sant'Eufemia-Piani Aspromonte (RC), 630 m, castagneto, 1 ex., 21.VIII.1990; Piano Iunco (RC), 1300 m, faggeta, 1 ex., 19.VIII.1990; Gambarie (RC), M.Basilicò, 1300 m, faggeta, 2 exx., 18.VIII.1990, LCA; Cippo Garibaldi, 1300 m, Fagus e Abies, 1 ex., 17.X.1993; S. Luca (RC), S. Giorgio, 620 m, lecceta, 1 ex., 13.X.1993, LCM; S. Luca (RC), 700 m, 7 exx., 16.XI.1993, LCS;

Antonimina (RC), lecceta, 600-800 m, 6 exx., 15.VI.1991, 1.VI.1993 e 11.X.1993; Gerace (RC), castagneto, 600 m, 4 exx., 11.X.1993, LCAS; Gerace (RC), Zomino, sughereta, 6 exx., 15.XI.1993; Ciminà, lecceta, 10 exx., 15.XI.1993, LSCA; M.Limina (RC), 800 m, rive torr.in faggeta, 1 ex., 14.X.1993, LASCA; **Sicilia:** San Vito lo Capo (TP), M.Sparangio, 600 m, 1 ex. 1.III.1994; Castelvetrano (TP), Vallone Zangara, 1 ex., 11.III.1993, LCS; Castellammare del Golfo (TP), Castello Baia, prato, 3 exx., 9.XII.1993; Erice (TP), 3 exx., 10.XII.1993; Sambuca di Sicilia (AG), Lago Arancio, 4 exx., 11.XII.1993; Aci Castello (CT), prato, 1 ex., 26.XI.1993, LSCA; Ris. nat. Vendicari (SR), rive palude, 1 ex., 5.VI.1993; Gela (CL), rive biviere, 6 exx., 14.VI.1993; M.ti Nebrodi, Portella Femminamorta (ME), 1 ex., 11.VI.1991; str.Caronie-P.lla Obolo (ME), 1000 m, 1 ex., 12.VI.1991; Mistretta (ME), 1000 m, querceta, 2 exx., 10.VI.1991; Montalbano E. (ME), P.lla Cerasa, 1113 m, 2 exx., 13.VI.1991; M.ti Madonie, Isnello (PA), 550 m, 1 ex., 8.V.1991, LCA; Noto (SR), 5 exx., 4.VI.1993, LASCA.

NOTE ECOLOGICHE: È il Latridiidae più frequente nel meridione, lo si rinviene vagliando in lettiera sia di latifoglie che di conifere, in detriti vegetali, in detriti fluitati e sia in ambienti molto umidi che secchi; anche in trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Regione paleartica (Horion, 1961: 21). Tutta Italia e Isole (Luigioni, 1929: 532).

Dienerella anatolica (Mannerheim, 1844)

MATERIALE ESAMINATO: **Campania:** Cilento, Sansa (SA), bosco Centaurino, 500 m, castagneto, 3 exx., 23.VIII.1990, LCA; **Puglia:** Rutigliano (BA), 12 exx., 13.XII.1983; grotta Leucaspide (BA), 1 ex., X.1983; Gioia del Colle (BA), 14 exx., 26.VIII.1982, LDCA; Martina F. , bosco Pianelle (TA), 400 m, 24 exx., 6.IX.1981, LCM; San Basilio (TA), 16 ex., 17.IV.1988, 16.XI.1986 e 31.XII.1994, LCAM; Ris. nat. Le Cesine (LE), rive palude, 1 ex., 8.I.1994, LCA; **Basilicata:** Pietrapertosa, M.Impiso (PZ), 1100 m, 9 exx., 21.VI.1988; Corleto Perticara, ponte Cerreto (PZ), 770 m, 2 exx., 1.VII.1989; Policoro (MT), 66 exx., varie date e anni, LCA; Accettura (MT), bosco Gallipoli-Cognato, 1000 m, querceta, 2 exx., 7.XI.1993, LCM; **Calabria:** Aspromonte, Gerace (RC), Zomino, sughereta, 3 exx., 15.XI.1993, LSCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in lettiera di *Quercus* e *Fagus*, raramente in trappole con aceto ed ossa o margini di paludi.

DISTRIBUZIONE GEOGRAFICA: Spagna, Italia, Dalmazia, Grecia, Turchia, nord Africa. Toscana, Marche, Lazio, Italia meridionale, Sicilia, Sardegna e I. Capraia (Luigioni, 1929: 533, sub *Cartodere* (subg. *Cartoderema*) *anatolica* Mannh.).

Dienerella angelinii Rücker, 1998

Specie descritta di recente da Rücker (1998) sulla base di 329 exx. provenienti dalla Campania, Basilicata e Calabria e conservati in Coll. Museo Civico Storia Naturale "G.Doria", Genova, coll.Angelini e coll.Rücker.

MATERIALE ESAMINATO (TUTTI PARATYPI): **Campania:** M.ti Alburni, Casone d'Aresta (SA), 1300 m, 12 exx., 1.VIII.1990, 6 exx., 4.VIII.1990, *Fagus*, *Castanea*; Cilento, M. Raialonga (SA), 13 exx., 2.VIII.1990, Acer, Fagus; Sansa (SA), bosco Centaurino, 500 m, 4 exx., 1.VIII.1989, 5 exx., 3.VIII.1990, Castanea; M.Sacro (SA), 1400 m, 16 exx., 2.VIII.1989, 18 exx., 2.VIII.1990, *Fagus*; M.Cervati (SA), 1100 m, 20 exx., 31.VII.1989, *Fagus*; **Basilicata:** Mass. Pollino, Serra del Prete, pend.Ovest (PZ), 1600 m, 2 exx., 4.VII.1985, 1 ex., 22.VI.1985, *Fagus*; Colle del Dragone (PZ), 1600 m, 22 exx., 10.VIII.1989, *Fagus*; Piano Ruggio (PZ), 1550 m, 1 ex., 10.VII.1989, *Fagus*; San

Severino Luc. (PZ), 3 Km. N, 3 exx., 30.VII.1990, *Castanea*; S. Severino Luc. (PZ), bosco Magnano, 700 m, 13 exx., 14.VII.1989, 10 exx., 2.VIII.1989, Quercus e Fagus; Accettura, torr. Salandrella (MT), 5 exx., 9.IV.1989, *Quercus*; Accettura (MT), bosco Gallipoli-Cognato, 790 m, 5 exx., 5.VIII.1989, trapp.aceto; Corleto Perticara, Timpa Polveracchio (PZ), 2 exx., 9.IV.1989, *Quercus*; M.ti Maddalena, Paterno (PZ), 1050 m, loc. Mandrano, 2 exx., 3.VIII.1989; M.Sirino (PZ), 900 m, 7 exx., 30.VII.1989, 1500 m, 4 exx., 28.VII.1989, *Quercus* e *Fagus*; dint.Lago Sirino (PZ), 2 exx., 25.VII.1989, Fagus; M.Sirino (PZ), Timpa Pellinera, 1100 m, 13 exx., 9.VIII.1990, *Fagus*; M.Sirino (PZ), F. Sinni a Km.2 dalla sorgente, 1100 m, 7 exx., 9.VIII.1990, *Fagus*; Lagonegro (PZ), ponte La Cala, 600 m, 1 ex., 6.VIII.1990, Quercus; **Calabria:** M.ti Orsomarso, Buonvicino (CS), 8 exx., 7.VIII.1989, *Quercus*; Grisolia, loc. Pantanelle (CS), 700 m, 44 exx., 4.VIII.1989, 13 exx., 13.VIII.1990, 28 exx., 8.VII-8.VIII.1992., 5 exx., 11.IX.1993, *Fagus*; S. Maria del Monte (CS), 1350 m, 2 exx., 6.VIII.1989, *Fagus*; Piano di Campolongo (CS), 1340 m, 2 exx., 6.VIII.1989, *Fagus*; Buonvicino, loc.Serrapodolo (CS), 400 m, 8 exx., 7.VIII.1989, 8 exx., 12.VII.1992, *Quercus* e *Acer*; Passo Scalone (CS), 700 m, 9 exx., 6.VIII.1989; Catena Costiera, Fuscaldo (CS), 900 m, 6 exx., 5.VII.1988, Fagus; Sila, Camigliatello, Fossiata (CS), 1400 m, 1 ex., 2.VII.1987; Aspromonte, Piani Aspromonte (RC), 1000 m, 1 ex., 21.VIII.1990, *Fagus*.

NOTE ECOLOGICHE: Vaglio di foglie morte, legno marcio, muschi e funghi in lettiera di Fagus, meno comune in quella di *Quercus* o altre latifoglie; anche in trappole ad aceto.

DISTRIBUZIONE GEOGRAFICA: Specie endemica dell'Italia meridionale (Campania, Basilicata e Calabria) (Rücker, 1998, in stampa).

Dienerella clathrata (Mannerheim, 1844) (= *D. separanda* Auct.nec Reitter, 1887)

MATERIALE ESAMINATO: **Calabria:** Aspromonte, Sant'Eufemia (RC), Fiumara Crasta, 630 m, castagneto, 1 ex., 31.V.1993, LASCA; **Sicilia:** Castellammare del Golfo (TP), Castello Baia, prato, 5 exx., 9.XII.1993, LCS; M.ti Madonie, Castelbuono (PA), 1000 m, lecceta, 13 exx., 9.VI.1991; Piano Zucchi (PA), 1050 m, querceta, 2 exx., 11.VI.1993; M.ti Nebrodi, Portella Femminamorta (ME), 3 exx., 11.VI.1991; Montalbano E. (ME), bosco Malabotta, 900 m, lecceta, 15 exx., 3.VI.1993 e 13.VI.1991; str.Caronie-P.lla Obolo (ME), 1000 m, 10 exx., 12.VI.1991; Ficuzza (PA), lecceta, 48 exx., 7.VI.1991 e 7.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio di foglie in lettiera di latifoglie e sotto pietre nei prati.

DISTRIBUZIONE GEOGRAFICA: Germania (a sud di Main), Francia, Ungheria, Rep. Ceca, Slovacchia, Spagna, Italia. Luigioni (1929: 533, sub *D. separanda* Reitter) la segnala di Emilia, I. Elba, Umbria, Lazio, Sicilia, Sardegna e Corsica; Poggi (1975: 181, sub *separanda* Reitter) lo segnala anche di Liguria, Toscana e I. Giglio; Calabria!

Dienerella corsica Vincent, 1990

MATERIALE ESAMINATO: **Puglia:** Monopoli, Impalata (BA), 330 m, 5 exx., 24.III.1986, LLCLA.

NOTE ECOLOGICHE: Vaglio di foglie e rami secchi di *Quercus*.

DISTRIBUZIONE GEOGRAFICA: Specie sinora nota solo di Corsica, che pertanto risulta nuova per la fauna italiana; già inclusa nella Checklist (Poggi, 1995: 16) sulla base del presente materiale; Puglia!

Dienerella elegans (Aubé, 1850)

MATERIALE ESAMINATO: **Calabria:** Aspromonte, S. Luca (RC), str.per Sant.Polsi, 740 m, lecceta, 1

ex., 13.X.1993, LCA; Africo Nuovo (RC), prato, 2 exx., 17.XI.1993, LSCA; **Sicilia:** Sambuca di Sicilia (AG), Misilifurme, 3 exx., 11.XII.1993, LSCA.

NOTE ECOLOGICHE: Vaglio di foglie in lettiera di *Quercus* e sotto pietre nei prati.

DISTRIBUZIONE GEOGRAFICA: terre del Mediterraneo, nord Africa, Madera (Horion, 1961: 25). Liguria, Piemonte, Lombardia, Trentino-A.Adige, Emilia, Sardegna, Malta (Luigioni, 1929: 532), Calabria! Sicilia!

Dienerella elongata (Curtis, 1830)

MATERIALE ESAMINATO: **Puglia:** Foresta Umbra (FG), 800 m, 45 exx., 29.IV.1978, 6.V.1982 e 3-12.VII.1983, LCA; **Basilicata:** Mass. Pollino, Duglia (PZ), 1500 m, 10 exx., VIII.1981, LDCA; Piano Ruggio (PZ), 1550 m, 4 exx., X.1983 e 22.VI.1985; Serra del Prete, pendici Ovest (PZ), 1600 m, 3 exx., 4.VII.1985; Rionero, M.Vulture (PZ), 1100 m, 3 exx., 20.VI.1985 e 14.VII.1987; Rionero, L.Monticchio (PZ), 700 m, 14 exx., 10.VII.1987 e 19.VI.1988; Abriola, La Maddalena (PZ), 1400 m, 12 exx., 17.VII.1983, 7-9.VII.1987 e 30.VI.1988; Rifreddo (PZ), 1200 m, 2 exx., 22.V.1984 e 23.VI.1988; Abriola, M.Pierfaone (PZ), 1500 m, 2 exx., 19.VII.1983; Calvello, Mass.La Banca (PZ), 1300 m, 1 ex., 22.VI.1988; Pietrapertosa, M.Impiso (PZ), 1000 m, 34 exx., 21.VI.1988; Sellata (PZ), 1240 m, 1 ex., 23.VI.1988; Serra di Calvello (PZ), 1300-1400 m, 2 exx., 8.VII.1987; M.Sirino, Timpa Pellinera (PZ), 900 m, 1 ex., 30.VII.1989; Accettura (MT), pend.M.Croccia, 950 m, 1 ex., 1.VII.1989; Corleto Pert.(PZ), 770 m, 1 ex., 1.VII.1989; Policoro (MT), 3 exx., 15.I.1979 e 26-29.VI.1988, LCA; **Calabria:** M.ti Orsomarso, Valle Argentino (CS), 1 ex., 1.VII.1988; Sila, Lorica (CS), 1250 m, 1 ex., 26.VII.1979; M.Montenero (CS), 1400 m, 3 exx., 6.VII.1988; Camigliatello, Fossiata (CS), 1500 m, 2 exx., 2.VII.1987; Camigliatello (CS), 1 ex., 11.VII.1981; L.Ampollino (CS), 3 exx., 4.VII.1987; Croce di Magara (CS), 1400 m, 25 exx., 9.VII.1988; Catena Costiera, Fuscaldo (CS), 900 m, 6 exx., 5.VII.1988; Le Serre, Lacinia (CZ), 1000 m, 3 exx., 26.VI.1987; Aspromonte, Gambarie (RC), 1300 m, 3 exx., 19.VI.1987; Cittanova, Zomaro (RC), 950 m, 1 ex., 12.VII.1988; Piani Aspromonte (RC), 1000 m, 4 exx., 19-25.VI.1987 e 12.VII.1988, LCA.

NOTE ECOLOGICHE: Vaglio di foglie, legno marcio e muschi in lettiera di latifoglie, raramente di conifere; talvolta in trappole ad aceto ed ossa.

DISTRIBUZIONE GEOGRAFICA: Sud e centro Europa, sud della Fennoscandia (Horion, 1961: 26). Tutta Italia, I. Elba, Sardegna e Corsica (Luigioni, 1929: 533, sub *Cartodere* (subg. *Cartoderema*) *elongata* Curtis), Sicilia (Lundberg, Palm & Trottesdam, 1987a: 48).

Dienerella filiformis (Gyllenhal, 1827)

MATERIALE ESAMINATO: **Basilicata:** Nova Siri (MT), 400 m, querceta, 1 ex., V.1985, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in lettiera di *Quercus*.

DISTRIBUZIONE GEOGRAFICA: Regione paleartica, USA (Horion, 1961: 28). Italia settentrionale, Toscana, Abruzzo, Puglia e Corsica (Luigioni, 1929: 533, sub *Cartodere* (s. str.) *filiformis* Gyll.), tutta Italia e Corsica (Porta, 1929: 208).

Dienerella parilis (Rey, 1889)

MATERIALE ESAMINATO: **Campania:** M.ti Alburni, S. Rufo (SA), 4 exx., 4.VIII.1990; Grotta Pertosa (SA), 1 ex., 31.VII.1990; Padula (SA), 800 m, 1 ex., 3.VIII.1989; San Biase (SA), 480 m, 1 ex., 2.VIII.1989; Cilento, M.Raialonga (SA), acero, 8 exx., 2.VIII.1990; M.Cervati (SA), 1000

m, faggeta, 6 exx., VII.1990; Sansa (SA), bosco Centaurino, 500 m, castagneto, 11 ex., 1.VIII.1989 e 31.VII.1989, LCA; **Puglia**: Gargano, Foresta Umbra, lago d'Otri (FG), 2 exx., 29.IV.1978; bosco Sfilzi (FG), 550-600 m, 22 exx., IV-V.1978; Foresta Umbra, Valle del Peloso (FG), 1 ex., 15.V.1982; Foresta Umbra, 800 m, faggeta, 1 ex., 31.X.1977; Foresta Umbra (FG), part. integr. "Coppa d'Umbra", 700 m, faggeta, 6 exx., 12.VII. 1991; Foresta Umbra (FG), str.per Monte Sant'Angelo, 690 m, 2 exx., 10.VII.1991; Foresta Umbra (FG), str.per Monte Sant'Angelo, Mass.Lombardo, 650 m, querceta, 5 exx., 10.VII.1991; Foresta Umbra (FG), Falascone, 760 m, faggeta, 7 exx., 10.VII.1991, LCA; **Basilicata:** Abriola, M.Pierfaone (PZ), 1500 m, 2 exx., 6.VI.1983; Corleto Pert. (PZ), 2 exx., 26.VI.1986; Abriola (PZ), La Maddalena, 1200 m, querceta, 6 exx., 2.VI.1991, 1400 m, faggeta, 25 exx., 30.VI.1988 e 7.VIII.1990 e 22.VII.1991; Mass. Pollino, Piano Ruggio (PZ), 1 ex., 22.VI.1985; Pietrapertosa (PZ), 1000 m, 8 exx., 21.VI.1988; Accettura (MT), torr.Salandrella, 1 ex., 24.V.1989; Accettura, Piano Cancello (MT), 850 m, 2 exx., 14.V.1989; Accettura (MT), M.Croccia, 1000 m, querceta, 2 exx., 23.VII.1991; Accettura, bosco Gallipoli (MT), 700 m, 1 ex., 1.VII.1989; Cirigliano (MT), 850 m,1 ex., 14.V.1989; M.Vulture (PZ), 1000 m, 1 ex., 1.VI.1990, 1300 m, faggeta, 2 exx., 2.VI.1991; San Severino Luc. (PZ), Serra Cappellina, 1000 m, faggeta, 2 exx., 30.VII.1990, LCA; San Severino Luc. (PZ), 3 Km.N, castagneto, 10 exx., 30.VII.1990; Lagonegro (PZ), ponte La Cala, 600 m, querceta, 6 exx., 19.XII.1993 e 21.VI.1991; Ris. nat. WWF Lago di Pignola (PZ), 700 m, 700 m, base Salix, 2 exx., 7.XI.1993; M.Sirino (PZ), pend.N, 1300 m, faggeta, 6 exx., 28.VII.1989; M.Sirino (PZ), Timpa Pellinera, 1100 m, faggeta, 12 exx., 30.VII.1989; M.Li Foi (PZ), 1000 m, faggeta, 1 ex., 2.VI.1991; Lagonegro (PZ), ponte La Cala, 600 m, querceta, 8 exx., 6.VIII.1990, LCA, 3 exx., 2.VI.1992, LCM; **Calabria:** M.ti Orsomarso, Grisolia, loc. Pantanelle (CS), 700 m, 7 ex., 4.VIII.1989 e 11.IX.1993; Valle Argentino (CS), 250 m, querceta, 3 exx., 11.VIII.1990; Buonvicino (CS), loc.Serrapodolo, Quercus e Acer, 11 exx., 12.VII.1992 e 12.VIII.1990; Passo Scalone (CS), 700 m, 9 exx., 6.VIII.1989, LCA; Catena Costiera, L.Trifoglietti, 3 exx., LASCA; Sila, Croce di Magara, 19 exx., 9.VII.1988 e 11.VII.1981; Aspromonte, Delianuova (RC), 1000 m, bivio Brandano, castagneto, 38 exx., 15.X.1993; Sant'Eufemia (RC), 650 m, castagneto, 10 exx., 22.VI.1993; str.Sant'Eufemia-Piani Aspromonte (RC), 700-800 m, lecceta, 10 exx., 21.VI.1993, 630 m, castagneto, 5 exx., 21.VIII.1990; Ponte S. S. 183 su torr.Vasi, 1000 m, Quercus e Alnus, 7 exx., 17.VIII.1990; Piano Iunco (RC), 1300 m, faggeta, 24 exx., 19.VIII.1990; Gambarie (RC), 1300 m, faggeta, 1 ex., 18.VII.1993; Santo Stefano d'Aspr. (RC), 750 m, castagneto, 6 exx., 22.VI.1993; San Luca (RC), 740 m, str.per Sant.Polsi, 2 exx., 13.X.1993, LCA; S. Luca, S. Giorgio (RC), 620 m, lecceta, 7 exx., 13.X.1993; S. Luca, 1 ex., 13.X.1993; Cippo Garibaldi (RC), 1300 m, faggeta, 20 exx., 17.X.1993; Piani Aspromonte (RC), 1000 m, 6 exx., 14-16.X.1993; S. Alessio (RC), castagneto, 470 m, 7 exx., 15.X.1993, LCAM; ponte S. S. 183 su torr.Varzi (RC), 1000 m, 7 exx., 1.VI.1993; Sant'Eufemia d'Aspr., Fiumara di Crasta (RC), 600 m, 18 exx., 3.V.1993 e 31.V.1993; Zomaro (RC), 900 m, faggeta, 45 exx., varie date, 1993; Antonimina, 600-800 m, lecceta, 155 exx., date diverse, 1991, 1993; Sant'Eufemia, (RC), castagneto, 30 exx., 4.V.1993, 31.V.1993 e 14.X.1993; Gerace (RC), 750 m, lecceta, 7 exx., 11.X.1993; S. Alessio (RC), 470 m, castagneto, 10 exx., 2.V.1993; M.Limina, rive torr., 800 m, 12 exx., 14.X.1993; Ciminà (RC), 630 m, lecceta, 2 exx., 12.X.1993, LCAS; Gambarie (RC), M.Basilicò, 1300 m, faggeta, 10 exx., 1.V.1993, LASCA; San Luca (RC), 700 m, querceta, 1 ex., 16.XI.1993; Gerace (RC), Zomino, sughereta, 1 ex., 15.XI.1993; Cittanova (RC), 500 m, sughereta, 5 exx., 3.V.1993; Ferruzzano, bosco Rudia, 1 ex., 17.XI.1993, LSCA; **Sicilia:** M.ti Madonie, Piano Zucchi (PA), 1000 m, cavo quercia, 1 ex., 7.VI.1991; Ficuzza (PA), querceta, 3 exx., 6.VI.1991.

NOTE ECOLOGICHE: Vaglio di foglie, legno marcio e muschi in lettiera di latifoglie, raramente di conifere.

DISTRIBUZIONE GEOGRAFICA: Spagna, Provenza, Corsica, Italia. Liguria (Poggi, 1977: 345-346), Basilicata (Angelini, 1988: 78, Mass. Pollino), Puglia (Angelini, 1988: 43,

Gargano), Calabria (Angelini, 1991: 210, Sila), Campania! Sicilia!

Dienerella ruficollis (Marsham, 1802)

MATERIALE ESAMINATO: **Puglia:** Martina F. (TA), bosco Pianelle, 400 m, 1 ex., V.1988, LCA; Gioia del Colle (BA), 10 exx., 29.X.1992, LDCA.

NOTE ECOLOGICHE: Vaglio di foglie morte e legno marcio in lettiera profonda e molto umida di leccio.

DISTRIBUZIONE GEOGRAFICA: Tutta Europa, nord Africa, I. Madeira, I. Canarie, nord e centro America (Horion, 1961: 27). Tutta Italia e Isole (Luigioni, 1929: 533, sub *Cartodere* (*Cartoderema*) *ruficollis* Marsh.).

Adistemia watsoni (Wollaston, 1871)

MATERIALE ESAMINATO: **Puglia:** Bari, 6 exx., I. 1984, LDCAM.

DISTRIBUZIONE GEOGRAFICA: Specie subcosmopolita, segnalata del Messico, sud America, Madera, I. Canarie, Algeria, Capo di Buona Speranza, Portogallo, Spagna, Olanda, Germania, Svizzera, Francia e Sicilia (Poggi, 1975: 182), Stati Uniti. Sicilia (Palermo) (Luigioni, 1929: 533), Liguria, Lombardia (Poggi, l.c), Lazio (Zampetti, 1979: 96, Roma Eur e Poggi, 1997: 193, Roma dint.), Puglia!

Stephostethus alternans (Mannerheim, 1844)

MATERIALE ESAMINATO: **Calabria:** M.ti Orsomarso, Grisolia, loc. Pantanelle (CS), 700 m, faggeta, 1 ex., 4.VIII. 1989, LCA.

NOTE ECOLOGICHE: Vaglio di foglie e legno marcio in lettiera profonda e molto umida di Fagus.

DISTRIBUZIONE GEOGRAFICA: Europa centrale e meridione del nord Europa (Horion, 1961: 8). Alpi Marittime e Monti Simbruini (M.Viglio) (Luigioni, 1929: 531), Tirolo (Porta, 1929: 207), Calabria!

Stephostethus angusticollis (Gyllenhal, 1827)

MATERIALE ESAMINATO: **Basilicata:** Policoro, 1 ex., 5.VI.1988, LCA, 2 exx., 5.XII.1988, LCM; M.Sirino (PZ), Timpa Pellinera, 1100 m, faggeta, 1 ex., 9.VIII.1990, LCA; **Calabria:** Aspromonte, S. Alessio (RC), 470 m, castagneto, 1 ex., 3.V.1993, LASCA; **Sicilia:** Gela (CL), 48 exx., 14.VI.1993, margine palude; Ficuzza (PA), nido roditore, 2 exx., 7.VI.1993, querceta, 1 ex., 6.VI.1992; M.ti Nebrodi, Mistretta (ME), 1000 m, querceta, 1 ex., 10.VI.1991; M.ti Madonie, Piano Zucchi (PA), 1050 m, querceta, 1 ex., 7.VI.1991, LCA.

NOTE ECOLOGICHE: Vaglio di foglie in lettiera di latifoglie e di detriti ai margini di paludi.

DISTRIBUZIONE GEOGRAFICA: Europa, Siberia, nord Africa (Horion, 1961: 5). Italia settentrionale e centrale, Campania e Sardegna (Luigioni, 1929: 530), Sicilia (Lundberg, Palm & Trottesdam, 1987a: 48), Basilicata! Calabria!

Stephostethus productus (Rosenhauer, 1856)

MATERIALE ESAMINATO: **Basilicata:** Policoro (MT), 2 exx., XI.1980 e 7.II.1982, LCA; **Calabria:**

M.ti Orsomarso, Grisolia, loc. Pantanelle (CS), 700 m, faggeta, 1 ex., 4.VIII.1989, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in lettiera di *Salix*, *Fagus* e *Ulmus*.

DISTRIBUZIONE GEOGRAFICA: Austria (Horion, 1961: 6), Spagna, Francia, Italia. Liguria, Toscana, Lazio, Campania, Puglia, Calabria, Sardegna, Corsica e I. Capraia (Luigioni, 1929: 530, sub *Latridius angusticollis* v. *productus* Rosh.), Sicilia (Porta, 1929: 206) Basilicata (Angelini & Montemurro, 1986: 577, Policoro).

Cartodere constricta (Gyllenhal, 1827)

MATERIALE ESAMINATO: **Calabria:** Sila, L.Cecita (CS), 1300 m, 1 ex., 30.VII. 1978, LCM.

DISTRIBUZIONE GEOGRAFICA: Cosmopolita, tutta Europa (Horion, 1961: 12). Tutta Italia e Isole (Luigioni, 1929: 531, sub *Coninomus constrictus* Gyll.).

Cartodere nodifera (Westwood, 1839)

MATERIALE ESAMINATO: **Campania:** M.ti Alburni, Grotta Pertosa (SA), 2 exx., 31.VII.1990; Cilento, Sansa (SA), bosco Centaurino, 500 m, castagneto, 6 exx., 23.VIII.1990, LCA; **Puglia:** Gargano, Foresta Umbra (FG), 800 m, 7 exx., 3-12.VII.1983; Foresta Umbra, Valle Tesoro (FG), 420 m, 2 exx., 29.IV.1978; Foresta Umbra (FG), bosco Manatecco, 450 m, faggeta, 2 exx., 9.VII.1991; Foresta Umbra (FG), bosco Sfilzi, faggeta, 1 ex., 13.VII.1991; Foresta Umbra (FG), Falascone, 760 m, faggeta, 1 ex., 10.VII.1991; Francavilla F. (BR), 2 exx., 1.XI.1989 e 15.I.1990, LCA; Bari, 1 ex., V.1978; Noicattaro (BA), 1 ex., VI.1989; Castellana Grotte (BA), 1 ex., 25.XI.1989; Putignano (BA), 3 exx., 10.IV.1985, LDCA; Circummarpiccolo (TA), 2 exx., 21.X.1979 e 24.IV.1993, LCAM; **Basilicata:** Abriola, M.Pierfaone (PZ), 1500 m, 1 ex., 6.VI.1983; Abriola, La Maddalena (PZ), 1400 m, 2 exx., 30.VI.1988 e 2.VI.1991; San Severino Luc., Bosco Magnano (PZ), 670 m, 1 ex., 7.VI.1987; San Severino Luc. (PZ), Serra Cappellina, 1000 m, 1 ex., 30.VII.1990; Mass. Pollino, Piano Ruggio (PZ), 1550 m, 1 ex., 12.VI.1977; M.Sirino, lago Sirino (PZ), 1500 m, 1 ex., 25.VII.1989; M.Vulture (PZ), 1000 m, 2 exx., 1.VI.1990, LCA; Policoro (MT), 64 exx., varie date e anni, LCAM; **Calabria:** Mass. Pollino, Colle del Dragone (CS), 1600 m, 3 exx., 15.VII.1985; Sila, Croce di Magara (CS), 1400 m, 1 ex., 15.X.1978; Silvana Mansio (CS), 1300 m, 3 exx., 15.X.1978; M.Volpintesta (CZ), 1500 m, 13 exx., 8.VII.1977; S. Giovanni in Fiore (CS), 1300 m, 8 exx., 13.VII.1981, LCA; Camigliatello, Fossiata (CS), 1300 m, 1 ex., 7.VII.1977; L.Cecita (CS), 1300 m, 6 exx., 30.VII.1978, LCM; Le Serre, Ferdinandea (CZ), 1100 m, bosco Stilo, 1 ex., 27.VI.1987; Lacinia (CZ), 1000 m, 1 ex., 26.VI.1987; Aspromonte, Cittanova, Zomaro (RC), 950 m, 5 exx., 12.VII.1988; Piani Aspromonte (RC), 1100 m, 5 exx., 19.VI.1987, 12.VII.1988 e 16.X.1993; Piani Carmelia (RC), 1300 m, 1 ex., 24.VII.1988; Gambarie (RC), 1300 m, 1 ex., 11.VII.1988; Cippo Garibaldi (RC), 1300 m, Fagus e Abies, 2 exx., 17.X.1993, LCA.; Sant'Eufemia, Fiumara di Crasta (RC), 630 m, 6 exx., 3.V.1993 e 31.V.1993, LCAS; Limina (RC), 1 ex., 14.X.1993; Zomaro (RC), faggeta, 1 ex., 3.V.1993, LASCA; **Sicilia:** Portella Rizzo (ME), 1 ex., 5.VI.1991; Montalbano E. (ME), bosco Malabotta, 900 m, lecceta, 8 exx., 3.VI.1993; M.ti Madonie, Castelbuono (PA), 1000 m, lecceta, 1 ex., 9.VI.1991, LCA.

DISTRIBUZIONE GEOGRAFICA: Cosmopolita, tutta Europa (Horion, 1961: 11). Tutta Italia e Isole (Luigioni, 1929: 531, sub *Latridius* (*Aridionomus*) *nodifera* Westw.).

Corticaria n. sp. (Rücker i.l.) (= *C. crenulata* (Gyllenhal, 1827) limitatamente agli esemplari italiani)

MATERIALE ESAMINATO: **Puglia:** Gargano, Lesina (FG), 3 exx., 22.IV.1981; Cagnano Varano (FG), 1 ex., 15.V.1982; Torre Sfinale (FG), 7 exx., 15.V.1982; Laterza, M.Camplo (TA), 400 m, 4 exx., 11.V.1979; fiume Lato, Km.10 dalla foce (TA), 15 exx., 2.I.1977; riva sinistra foce fiume Bradano (TA), 15 exx., 15.II.1985; Torre Testa (BR), 3 exx., 23.I.1977, LCA; Gravina di Puglia (BA), 400 m, 8 exx., 19.X.1984 e 21.IV.1987; Rutigliano (BA), 1 ex., 6.V.1987; Castellana Grotte (BA), 1 ex., XI.1989, LDCA; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 22 exx., 29.V.1991 e 14-31.VII.1991; Matera, 1 ex., VII.1981, LDCA; Rifreddo (PZ), 1100 m, 1 ex., 21-22.V.1984; Laurenzana (PZ), 1 ex., 23.V.1984; foce fiume Basento (MT), 17 exx., 26.I.1979; Policoro (MT), molto comune tutto l'anno, LCA.

NOTE ECOLOGICHE: Vaglio in lettiera di latifoglie, detriti vegetali anche fluitati e in trappole luminose.

NOTE TASSONOMICHE: Uno degli Autori (Rücker) in seguito a revisione del gruppo *crenulata* ha attribuito a sei diverse specie gli esemplari sinora determinati come *C. crenulata* (Gyllenhal); gli esemplari italiani appartengono ad una nuova specie, endemica, in corso di descrizione su altra rivista; *Corticaria crenulata* (Gyllenhal) risulta presente solo nel nord Europa.

DISTRIBUZIONE GEOGRAFICA: Specie descritta su esemplari di Puglia e Basilicata ma ad essa sono sicuramente da riferire le segnalazioni di Luigioni (1929: 533) per il Piemonte, Trentino-A. Adige, Emilia, Italia centrale e Sardegna e quella di Porta (1949: 222) per la Sicilia. Ugualmente a questa nuova specie vanno riferite le segnalazioni di Angelini & Montemurro (1986: 577) e Angelini (1996: 82) per la Basilicata (Policoro e Lago di Pignola) e di Angelini (1988: 42) per la Puglia (Gargano).

Corticaria cucujiformis Reitter, 1880

MATERIALE ESAMINATO: **Puglia:** str. Taranto-Martina F. (TA), 1 ex., 16.VIII.1979; fiume Lato, Km.2 dalla foce (TA), 1 ex., 23.V.1976, LCM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 3 exx., V-VII.1991; Oasi WWF Lago di San Giuliano (MT), Ponte Cagnolino, trappola luminosa, 1 ex., 19.VIII.1992; Policoro (MT), 1 ex., 5.II.1978, LCA.

NOTE ECOLOGICHE: Sotto corteccia di *Salix* deperiente a Policoro; vaglio di detriti vegetali fluitati; attratto da trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Corsica, Italia, Grecia. Toscana (Viareggio), Sardegna e Corsica (Luigioni, 1929: 535), Basilicata (Angelini & Montemurro, 1986: 577, Policoro), Puglia!

Corticaria elongata (Gyllenhal, 1827)

MATERIALE ESAMINATO: **Puglia:** Casamassima (BA), 2 exx., 26.VIII.1982 e XI.1984; Gioia del Colle (BA), 2 exx., 26.VIII.1982; Rutigliano (BA), 3 exx., 4.X.1984; Gravina di Puglia (BA), 2 exx., 19.X.1984; Sammichele (BA), 1 ex., 2.IV.1985; Gravina di Puglia (BA), 400 m, 1 ex., 19.X.1984; Monopoli (BA), 3 exx., 11.X.1982, LDCA; Francavilla F. (BR), prato, 1 ex., 15.VIII.1993; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 38 exx., 14-31.VII.1991; Oasi WWF Lago di San Giuliano (MT), Ponte Cagnolino, 49 exx., varie date, 1992, trappola luminosa; Pietrapertosa (PZ), 1000 m, querceta, 1 ex., 1.V.1990, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in lettiera di *Quercus*; spesso attratto in numero da trappole luminose.

DISTRIBUZIONE GEOGRAFICA: regione paleartica, Stati Uniti, St.Helena, Nuova Zelanda (Horion, 1961: 48). Tutta Italia, I. Elba, Sicilia, Sardegna e Corsica (Luigioni, 1929: 535).

Corticaria fagi Wollaston, 1854

MATERIALE ESAMINATO: **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 1 ex., 14-31.VII.1991, trappola luminosa, CA.
DISTRIBUZIONE GEOGRAFICA: Europa centrale: singole località della Gran Bretagna, Francia, Danimarca, Germania, Polonia, Austria, Romania (Horion, 1961: 49, sub C.pietschi Ganglbauer); Svezia, Norvegia e Finlandia (Lundberg, 1986: 101, 1995: nr.3194 e Silfverberg, 1992: 57). Basilicata (Angelini, 1996: 82, Lago di Pignola). Specie nuova per la fauna italiana, da aggiungere alla Checklist dei Coleotteri Italiani.

Corticaria fulva (Comolli, 1837)

MATERIALE ESAMINATO: **Puglia:** Gargano, Foresta Umbra, Valle Tesoro (FG), 420 m, 2 exx., 31.X.1977, faggeta, LCA; **Basilicata:** Mass. Pollino, Acqua Tremola (PZ), 1400 m, 1 ex., 18.VI.1985; Oasi WWF Lago di San Giuliano (MT), Ponte Cagnolino, trappola luminosa, 10 exx., 25.VIII.1992, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte e legno marcio in lettiera profonda di Fagus; attratto da trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Cosmopolita, tutta Europa (Horion, 1961: 34). Tutta Italia e Isole (Luigioni, 1929: 534);

Corticaria longicollis (Zetterstedt, 1838)

MATERIALE ESAMINATO: **Basilicata:** Nova Siri (MT), 500 m, 1 ex., 29.IV.1979, LCA.

NOTE ECOLOGICHE: Vaglio di foglie in lettiera di *Quercus*.

DISTRIBUZIONE GEOGRAFICA: Europa, Caucaso (Horion, 1961: 46). Alpi Graie (Gran Paradiso), Trentino-A. Adige (Pejo) e Friuli-V.Giulia (Luigioni, 1929: 534); Porta (1929: 210) lo segnala invece di tutta Italia, estensione poco verosimile anche se il reperto in Basilicata fa supporre una più ampia presenza della specie nella Penisola; Poggi (1995:17) lo segnala con dubbio per l'Italia centro-meridionale; Basilicata!

Corticaria obscura Brisout, 1863

MATERIALE ESAMINATO: **Puglia:** Acquaviva (BA), 1 ex., 16.X.1988, LDCA. **Basilicata:** Rionero, M.Vulture (PZ), 1100 m, 39 exx., 14.VII.1983, 18-20.VI.1988, e 1-2.VI.1991; Rionero, L.Monticchio (PZ), 700 m, 18 exx., 10.VII.1987; Ris. nat. WWF Lago di Pignola (PZ), 700 m, 1 ex., 9.V.1991; Serra di Calvello (PZ), 1300-1400 m, 1 ex., 8.VII.1987; Abriola, Timpa del Gioco (PZ), 1300 m, 1 ex., 22.VI.1988; Pietrapertosa, M.Impiso (PZ), 1000 m, 10 exx., 21.VI.1988, LCA; **Calabria:** Mass. Pollino, Anticristo (CS), 1200 m, 3 exx., 20.VII.1979; Sila, Camigliatello (CS), 1300 m, 2 exx., 10.VI.1979; bivio S. S. 107 per S. Pietro in Guarano (CS), 1100 m, 1 ex., 20.VII.1978; fiume Neto a sud S. S. 107, 3 exx., 19.VII.1978; Vill.Mancuso (CZ), 1 ex., 4.VII.1987; Aspromonte, Piani Carmelia (RC), 1000 m, 2 exx., 25.VI.1987; Gambarie (RC), 1300 m, 5 exx., 19.VI.1987, LCA; **Sicilia:** Montalbano E. (ME), bosco Malabotta, 900 m, querceta, 2 exx., 13.VI.1991, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte, legno marcio e muschi in lettiera di *Fagus* e *Quercus*, anche in ambienti molto secchi.

DISTRIBUZIONE GEOGRAFICA: Europa centrale, occidentale e meridionale, Algeria, Caucaso (Horion, 1961: 40). Ticino, Lombardia, Trentino-A.Adige, Italia centrale, Basilicata, Sardegna e Corsica (Luigioni, 1929: 534), Calabria (Angelini, 1988: 78, Mass. Pollino), Sicilia (Lundberg, Palm & Trottesdam, 1987a: 48), Puglia!

Corticaria pineti Lohse, 1960 (= *C. pinicola* Lohse, 1959 nec Brisout, 1866)

MATERIALE ESAMINATO: **Puglia:** Gargano, Pugnochiuso (FG), 1 ex., 31.VI.1981; Circummarpiccolo (TA), prato, 2 exx., 4.IV.1993, LCA; fiume Lato, Km.8 dalla foce (TA), 6 exx., 2.I.1977 e 11.XI.1990, LCM; San Pietro in Bevagna. (TA), 1 ex., 23.VI.1967, LDCA; **Basilicata:** foce fiume Basento (MT), 20 exx., 26.I.1979; Oasi WWF Lago di San Giuliano (MT), Ponte Cagnolino, trappola luminosa, 15 exx., varie date, 1992; Fiume Sinni, Km.5 dalla foce (MT), detr.fluitati, 1 ex., 31.XII.1990, LCA; Policoro (MT), 4 exx., IV-V.1977 e 7.II. 1993, LCAM.

NOTE ECOLOGICHE: Vaglio di terriccio e foglie di *Quercus* sp. a Pugnochiuso, sotto cortecce di *Salix* e *Ulmus* a Policoro, in detriti fluitati lungo i fiumi Lato e Basento; attratto da trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Germania (Horion, 1961: 32), Svezia e Finlandia (Silfverberg, 1992: 57 e Lundberg, 1995: nr.3171), Austria, Ungheria, Italia. Trentino-A. Adige (Peez & Kahlen, 1977: 293), Basilicata (Angelini & Montemurro, 1986: 577, Policoro), Puglia (Angelini, 1988: 43, Gargano).

Corticaria pubescens (Gyllenhal, 1827)

MATERIALE ESAMINATO: **Puglia:** Acquaviva (BA), 1 ex., 2.XI.1968; Manduria (TA), 2 exx., 2.VI.1968, LDCA; Circummarpiccolo (TA), 2 exx., 9.XII.1976, LCM; riva sinistra foce fiume Bradano (TA), 5 exx., 15.II.1985, LCA; **Basilicata:** foce fiume Basento (MT), 1 ex., 26.I.1979; Policoro (MT), 3 exx., 31.V.1981, LCA; **Calabria:** Aspromonte, dint.S. Luca (RC), 300 m, 2 exx., 24.VI.1987, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in lettiera di *Quercus* e di detriti vegetali anche fluitati.

DISTRIBUZIONE GEOGRAFICA: Regione paleartica, America, Australia, Sud Africa (Horion, 1961: 32). Tutta Italia, Sardegna e Corsica (Luigioni, 1929: 533).

Corticaria saginata Mannerheim, 1844

MATERIALE ESAMINATO: **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, trappola luminosa, 1 ex., 25-30.VII.1992, LCA.

DISTRIBUZIONE GEOGRAFICA: Nord e centro Europa, Siberia (Horion, 1961: 38). Trentino-A.Adige (Peez & Kahlen, 1977: 295), Toscana (Bettolle), Lazio (Luigioni & Tirelli, 1910), Sicilia (Messina) (Luigioni, 1929: 534), Basilicata!

Corticaria serrata (Paykull, 1798)

MATERIALE ESAMINATO: **Puglia:** fiume Lato, Km.2 dalla foce (TA), 1 ex., 16.XII.1979, LCM; Bari,

1 ex., IX.1983; Putignano (BA), 4 exx., 10.IV.1985, LDCA; S. Basilio (TA), querceta, 4 exx., 16.XI.1986 e 31.XII.1994, LCAM; Francavilla F. (BR), prato, 1 ex., 5.II.1994, LCA; **Basilicata:** Nova Siri (MT), 400 m, 1 ex., 29.IV.1979, LCM; Policoro (MT), 20 exx., 25.III.1979, 4.XII.1980, 7.II.1993 e 5.XI.1989, LCAM; Rotonda (PZ), 1 ex., 11.IX.1977; Mass. Pollino, Duglia (PZ), 1400 m, 16 exx., VIII.1981, LDCA; Cersosimo (PZ), 600 m, 1 ex., 18.VI.1978; Coppola di Paola, pendici NE (PZ), 1600 m, 1 ex., 19.VII.1979; Salandra Scalo (MT), str.Basentana, Km.54, trapp.aceto, 1 ex., 9.X.1994, LCA; **Calabria:** Sila, Silvana Mansio (CS), 1300 m, 1 ex., 9.VII.1988; Lorica (CS), 1300 m, 3 exx., 11.VII.1981; Aspromonte, S. Luca (RC), dint.San Giorgio, 1 ex., 13.X.1993, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in lettiera di latifoglie e sotto pietre nei prati; anche in trappole ad aceto.

DISTRIBUZIONE GEOGRAFICA: Cosmopolita, tutta Europa (Horion, 1961: 39). Tutta Italia e Isole (Luigioni, 1929: 534).

Cortinicara gibbosa (Herbst, 1793)

MATERIALE ESAMINATO: **Puglia:** Gargano, Foresta Umbra (FG), 800 m, 2 exx., 31.X.1977 e 16.V.1982; riva sinistra foce fiume Bradano (TA), 4 exx., 15.II.1985; Martina F. , bosco Pianelle (TA), 400 m, 1 ex., VI.1969; San Cataldo, Ris. nat. Le Cesine (LE), 2 exx., VIII.1982, LCA; fiume Lato, Km.2 dalla foce (TA), 2 exx., 20.III.1977 e 25.IV.1978, LCM; San Pietro in Bevagna (TA), 1 ex., 23.VI.1967, LDCA; **Basilicata:** foce fiume Basento (MT), 3 exx., 26.I.1979; Policoro (MT), comune, III-V, vari anni; Mass. Pollino, Piano Ruggio (PZ), 1550 m, 1 ex., 31.VIII.1982; Vallone Caballa (PZ), 1350 m, 1 ex., 7.VI.1985; Ris. nat. WWF Lago di Pignola (PZ), 700 m, 13 exx., 9.V.1991, 31.VII.1991 e 19.X.1991; Oasi WWF Lago di San Giuliano (MT), 100 m, Ponte Cagnolino, 59 exx., varie date, 1992, trappola luminosa; Pisticci Scalo (MT), vaglio graminacee, 1 ex., 2.I.1994, LCA; **Calabria:** Mass. Pollino, Campotenese (CS), 980 m, 3 exx., 22.VII.1983; Sila, Lorica (CS), 1300 m, 15 exx., 19.VI.1978, LCA; Camigliatello, Fossiata (CS), 1350 m, 6 exx., 30.VII.1978; dint.L.Ampollino (CS), 1 ex., 15.VIII.1988, LCM; Aspromonte, M.Montalto (RC), 1600-1800 m, 1 ex., 13.VII.1988; Delianuova (RC), 1000 m, bivio Brandano, castagneto, 2 exx., 16.VI.1991; str.Zomaro-Sanatorio, 900 m, faggeta, 3 exx., 15.VI.1991; Piani Aspromonte (RC), 1000 m, 6 exx., 14.VI.1991, LCA; Piani Aspromonte, 1000 m, palude, 37 exx., 1.V.1993 e 31.IV.1993; Sant'Eufemia d'Aspr. (RC), Fiumara di Crasta (RC), 630 m, castagneto, 2 exx., 3.V.1993, LCAS; S. Alessio (RC), 470 m, castagneto, 1 ex., 2.V.1993; Antonimina (RC), 800 m, base roccia in lecceta (RC), 1 ex., 3.V.1993, LASCA.

NOTE ECOLOGICHE: Vaglio di foglie morte e muschi in lettiera di latifoglie, raramente in detriti vegetali anche fluitati; comune in trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Cosmopolita, tutta Europa (Horion, 1961: 50). Tutta Italia e Isole (Luigioni, 1929: 535, sub *Corticarina*).

Corticarina fulvipes (Comolli, 1837)

MATERIALE ESAMINATO: **Puglia:** Gargano, San Menaio (FG), 2 exx., 16.V.1982; Manfredonia (FG), 1 ex., 27.IV.1981; riva sinistra foce fiume Bradano (TA), 7 exx., 15.II.1985; fiume Lato, Km 10 dalla foce (TA), 1 ex., 2.I.1977; Francavilla F. (BR), 140 m, 29 exx., 1.XI.1989, 15.I.1990 e 5.II.1994; Mesagne, bosco Preti (BR), 1 ex., 2.XII.1989; dint.Taranto, 10 exx., 24.XII.1994; Ris. nat. Le Cesine (LE), palude, 2 exx., 8.I.1994, LCA; Torre Testa (BR), 1 ex., 16.I.1977; Circummarpiccolo (TA), 24 exx., varie date e anni; Taranto, 1 ex., 17.X.1976; San

Basilio (TA), 2 exx., 16.XI.1986; Marina di Lizzano (TA), 1 ex., 6.I.1992; Talsano (TA), 1 ex., 7.XII.1986, LCM; Casamassima (BA), 2 exx., 13.XI.1983 e XI.1984; Noci (BA), 4 exx., 30.IX.1972; S. Pietro in Bevagna (TA), 3 exx., 5.VIII.1968; Torre Colimena (TA), 1 ex., VIII.1968; Borraco (TA), 1 ex., 18.VII.1967; Avetrana (TA), 2 exx., 11.IV.1968; Torre Bianca (TA), 1 ex., 9.III.1969; Santeramo (BA), 2 exx., 19.I.1990; Gravina di Puglia (BA), 1 ex., 19.X.1984; Valenzano (BA), 8 exx., 3.XI.1984; Acquaviva (BA), 3 exx., 16.X.1988; Monopoli (BA), 1 ex., 11.X.1982; Monopoli, Monte S. Nicola (BA), 2 exx., VII-VIII.1988; Sava, Torricella (TA), 6 exx., 22.VII.1989, LDCA; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 29 exx., V-XI.1991; Pisticci Scalo (MT), vaglio graminacee, 10 exx., 2.I.1994; Salandra Sc.(MT), str.Basentana, Km.54, vaglio graminacee, 5 exx., 2.I.1994; Lagonegro (PZ), ponte La Cala, 600 m, 1 ex., 21.VI.1991; Mass. Pollino, San Severino Luc. (PZ), 700 m, bosco Magnano, detr.vegetali, 1 ex., 19.XII.1993, LCA; foce fiume Basento (MT), 15 exx., 26.I.1979; Oasi WWF Lago di San Giuliano (MT), 100 m, Ponte Cagnolino, 25 exx., 8.XII.1992; Policoro (MT), 130 exx., II-XII, vari anni, LCAM; **Calabria:** Aspromonte, Cittanova, Zomaro (RC), 950 m, 2 exx., 12.VII.1988, LCA; Africo Nuovo (RC), 32 exx., 20.XI.1993; S. Luca (RC), torr.S. Venere, 14 exx., LSCAS; Gerace (RC), Zomino, 6 exx., sughereta, 15.XI.1993, LCS; Sant'Eufemia (RC), Fiumara Castra, 650 m, lecceta, 1 ex., 4.V.1993, LASCA; **Sicilia**: Sambuca di Sicilia (AG), Misilifurme, 12 exx., 11.XII.1993, LSCAS; Gela (CL), rive biviere, 6 exx., 14.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio di detriti vegetali anche fluitati o sotto pietre nei prati, raramente in lettiera di latifoglie; anche in trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Europa occidentale e meridionale, nord Africa, Madeira, I. Canarie, I. Azzorre, Asia Minore, Caucaso (Horion, 1961: 53). Emilia, Toscana, I. Elba, Lazio, Puglia, Sicilia, Sardegna, Corsica e Malta (Luigioni, 1929: 535), Veneto (Ratti, 1986: 188), Basilicata (Angelini & Montemurro, 1986: 577, Policoro), I. Lampedusa (Angelini, 1995: 566), Calabria!

Corticarina fuscula (Gyllenhal, 1827)

MATERIALE ESAMINATO: **Basilicata:** Rionero, M.Vulture (PZ), 1000 m, 1 ex., 20.VI.1988, LCA.

NOTE ECOLOGICHE: Vaglio di foglie morte in querceta.

DISTRIBUZIONE GEOGRAFICA: Regione paleartica, nord America, Usambara (Horion, 1961: 52). Italia settentrionale, Toscana, Abruzzo (Luigioni, 1929: 535), Lazio (Luigioni & Tirelli, 1910), Puglia (Horion, l.c.), Basilicata!

Corticarina similata (Gyllenhal, 1827)

MATERIALE ESAMINATO: **Basilicata:** Sellata (PZ), 1100 m, faggeta, 7 exx., 24.VIII.1991, leg.Romano, CA; **Calabria:** Le Serre, Ferdinandea, bosco Stilo (CZ), 1100 m, 1 ex., 27.VI.1987; Aspromonte, str. Zomaro-Sanatorio, 4 exx., 15.VI.1991, LCA; Sant'Eufemia (RC), Fiumara Castra, 650 m, lecceta, 1 ex., 31.V.1993, LASCA.

NOTE ECOLOGICHE: Vaglio di foglie morte e funghi in lettiera di Fagus e Quercus

DISTRIBUZIONE GEOGRAFICA: Tutta Europa, Siberia, nord Africa, nord America (Horion, 1961: 51). Alpi Marittime, Piemonte, Trentino-A. Adige, Emilia, Italia centrale e Campania (Luigioni, 1929: 535), Basilicata! Calabria!

Melanophthalma curticollis (Mannerheim, 1844) (= *M. transversalis* Auct. partim)

MATERIALE ESAMINATO: **Puglia:** Ris. nat. Le Cesine (LE), rive palude, 1 ex., VIII.1982; fiume Lato, Km.8 dalla foce (TA), 1 ex., 2.I.1977; Martina F. (TA), bosco Pianelle, querceta, 1 ex., VI.1969; Gargano, Foresta Umbra (FG), Valle Tesoro, 470 m, faggeta, 1 ex., 6.V.1982, LCA; Manduria (TA), loc. San Pietro in Bevagna, 1 ex., 23.VI.1967, LDCA; **Basilicata:** Policoro (MT), 1 ex., 24.IV.1977, LCA.

DISTRIBUZIONE GEOGRAFICA: Regione paleartica (Horion, 1961: 54). Luigioni (1929: 535) la considera sinonimo di *M. transversalis* Gyll. (= *Cortinicara gibbosa* Herbst) che cita di tutta Italia e Isole.

Melanophthalma distinguenda (Comolli, 1837)

MATERIALE ESAMINATO: **Puglia:** Circummarpiccolo (TA), 1 ex., 7.VI.1992; Marina di Lizzano (TA), 2 exx., 7.XII.1986, LCM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 54 exx., V-VII.1991; Rionero, M.Vulture (PZ), 1200 m, 1 ex., 11.VII.1987; Policoro (MT), 1 ex., IV.1984; Mass. Pollino, Piano Ruggio (PZ), 1550 m, 1 ex., 7.VI.1987; Oasi WWF Lago di San Giuliano (MT), Ponte Cagnolino, trappola luminosa, 6 exx., 9.VIII.1992, 25.VIII.1992 e 23.IX.1992; Lagonegro (PZ), ponte La Cala, 600 m, querceta, 1 ex., 6.VIII.1990; str.Lago Pignola-Sellata (PZ), 1000 m, 3 exx., 3.VI.1991, LCA; str.Ruoti-M.Li Foi, faggeta, 1 ex., leg.Racana, CA; **Calabria;** Sila, Camigliatello, Fossiata (CS), 1500 m, 2 exx., 7.VII.1988; Lorica (CS), 1320 m, 1 ex., 3.VII.1987, LCA; Aspromonte, Piani Aspromonte (RC), 1000 m, rive palude, 1 ex., 1.V.1993, LASCA; Fiumara Valanidi (RC), 2 exx., 20.XI.1993, LSCA; **Sicilia:** M.ti Nebrodi, L.Quattrocchi (ME), 3 exx., 10.VI.1991; Montalbano E. (ME), P.lla Cerasa, 1113 m, 1 ex., 13.VI.1991, LCA.

DISTRIBUZIONE GEOGRAFICA: Specie xerotermica, cosmopolita, distribuita in larga parte della regione paleartica, rara al nord (Horion, 1961: 54). Tutta Italia e Isole (Luigioni, 1929: 535).

Melanophthalma fuscipennis (Mannerheim, 1844)

MATERIALE ESAMINATO: **Puglia:** Noci (BA), 1 ex., IX.1981; Manduria (TA), 1 ex., II.1970; Torre Bianca (TA), 1 ex., 9.III.1969; Putignano (BA), 1 ex., 10.IV.1985; Gioia del Colle (BA), 1 ex., 19.X.1980, LDCA; Torre Testa (BR), 3 exx., 1.IV.1976; fiume Lato, Km.2 dalla foce (TA), 2 exx., 19.III.1976 e 11.XI.1990, LCM; S. Basilio (TA), querceta, 3 exx., 16.XI.1986 e 31.XII.1994, LCAM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 3 exx., 31.VII.1991 e 21.VIII.1991; Pietrapertosa, M.Impiso (PZ), 1200 m, 8 exx., 4.VI.1978; Accettura, bosco Gallipoli-Cognato (MT), 1000 m, 1 ex., 22.V.1977; Policoro (MT), 6 exx., IV-V.1976 e 14.XI.1992, rive palude; Mass. Pollino, Serra delle Ciavole, pendici SE (PZ), 1700 m, 3 exx., 7.VII.1985; Piano Ruggio (PZ), 1550 m, 7 exx., VII.1977; Ferrandina Sc. (MT), trapp.aceto, 1 ex., 1.VI.1994, LCA; Nova Siri (MT), 400 m, 1 ex., 22.IV.1979, LCM; Oasi WWF Lago di San Giuliano (MT), 100 m, Ponte Cagnolino, 4 exx., 1.IX.1992, 14.VIII.1992 e 8.XII.1992, LCAM; **Calabria:** Aspromonte, ponte S. S. 183 su torr.Vasi (RC), 1000 m, *Quercus* e *Alnus*, 1 ex., 1.VI.1993, LASCA; **Sicilia:** M.ti Madonie, Piano Battaglia (PA), 1600 m, faggeta, 4 exx., 7.VI.1991; Ficuzza (PA), querceta, 1 ex., 6.VI.1991; M.ti Nebrodi, Mistretta (ME), 1000 m, querceta, 4 exx., 10.VI.1991, LCA.

DISTRIBUZIONE GEOGRAFICA: Sud Europa dalla Penisola Iberica alla Penisola Balcanica, Sud Ungheria, Romania, Caucaso, nord Africa, Sud Africa (Natal) (Horion, 1961: 55). Tutta Italia e Isole (Luigioni, 1929: 536).

Melanophthalma maura Motschulsky, 1866 (= *M. austriaca* Franz, 1967)

MATERIALE ESAMINATO: **Puglia:** San Pietro Vernotico (BR), VII.1972, leg. Angelini, coll. Zampetti; foce F. Lato (TA), 1 ex., 18.IV.1993, LCM; **Basilicata:** str. Lago Pignola-Sellata (PZ), 950 m, 2 exx., 3.VI.1991; Ris. nat. WWF Lago di Pignola (PZ), 700 m, base Salix, 2 exx., 7.XI.1993; Oasi WWF Lago di San Giuliano (MT), 100 m, Masseria, trappola luminosa, 1 ex., 7.VIII.1992, LCA; **Calabria:** Aspromonte, Piani Aspromonte (RC), 1000 m, rive palude, 4 exx., 1.V.1993, LASCA.

DISTRIBUZIONE GEOGRAFICA: Italia, Germania, Austria, Ungheria, Rep.Ceca! (non citata da Jelìnek, 1993: 107), Russia, Asia. Specie considerata da Luigioni (1929: 535) sinonimo di *M. transversalis* Gyll. (= *Cortinicara gibbosa* Herbst) è segnalata da Zampetti (1979: 96, sub *austriaca* Franz) del Lazio (Itri) e di Puglia (S. Pietro Vernotico); successivamente è segnalata da Fancello (1985: 25) per la Sardegna e da Ratti (1986: 189) per il Veneto; la specie mi é nota anche della Valle d'Aosta (Morgeaux, VI. 1986) ed Emilia (Castelvecchio sulla Secchia, VIII); Basilicata! Calabria! Rücker (1989: 108) stabilisce la sinonimia *Melanophthalma austriaca* Franz = *M. maura* Motschulsky.

Melanophthalma sericea (Mannerheim, 1844) (= *M. parva* Johnson, 1972)

MATERIALE ESAMINATO: **Puglia:** Manduria (TA), San Pietro in Bevagna, 6 exx., 5.XI.1967 e 20.VII.1969, LDCA; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 21 exx., 30.V.1991, 23.VI.1991, 21.VII.1991 e 31.VIII.1991; Policoro (MT), 1 ex., IV.1983, LCA.

NOTE ECOLOGICHE: Vaglio di detriti vegetali.

DISTRIBUZIONE GEOGRAFICA: Rep.Ceca! (non citata da Jelìnek, 1993: 107), Iugoslavia, Grecia, Creta, Giordania, Cipro e Marocco. Sardegna e Malta (Luigioni, 1929: 535, sub *M. transversalis* ab. *sericea* Mannh.), Basilicata (Angelini & Montemurro, 1986: 577, sub *M. parva* Johnson, Policoro), Puglia!

Melanophthalma suturalis (Mannerheim, 1844)

MATERIALE ESAMINATO: **Puglia:** riva sinistra foce fiume Bradano (TA), 1 ex., 15.II.1985, LCA; Circummarpiccolo (TA), 1 ex., 6.X.1991, LCM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 144 exx., V-X.1991; Policoro (MT), 6 exx., varie date e anni, LCAM; Accettura (MT), bosco Gallipoli-Cognato, 1000 m, querceta, 2 exx., 7.XI.1993, LCM; Oasi WWF Lago di San Giuliano (MT), 100 m, Ponte Cagnolino, trappola luminosa, 15 exx., varie date, 1992, LCAM; Salandra Sc.(MT), str.Basentana, Km.54, vaglio graminacee, 2 exx., 2.I.1994, LCA; **Calabria:** Sila, Lorica (CS), 1320 m, 2 exx., 3.VII.1987 e 8.VII.1988; Croce di Magara (CS), 1400 m, 1 ex., 9.VII.1988; Le Serre, Serra S. Bruno (CZ), 820 m, 1 ex., 27.VI.1987; Aspromonte, Antonimina (RC), greto Fiumara Portigliola, 5 exx., 4.VI.1994, LCA; **Sicilia:** M.ti Nebrodi, L. Quattrocchi (ME), 15 exx., 10.VI.1991; Portella Femminamorta (ME), 1 ex., 11.VI.1991, LCA.

DISTRIBUZIONE GEOGRAFICA: Germania, Austria, Rep.Ceca! (non citata da Jelìnek, 1993: 107), Ungheria, Iugoslavia, sud Europa. Luigioni (1929: 535) la considera sinonimo di *M. transversalis* ab. *hortensis* Mannerheim, specie che indica di Piemonte, Toscana, Lazio, Sicilia e Sardegna; Ragusa (1893: 244, sub *transversalis* v. *suturalis* Mannerheim) la segnala di Sicilia (Palermo), Angelini (1991: 210) di Calabria (Sila) e Angelini (1996: 83) di Basilicata (Lago di Pignola), Puglia!

Melanophthalma taurica (Mannerheim, 1844)

MATERIALE ESAMINATO: **Puglia:** Gargano, Foresta Umbra, Valle del Peloso (FG), 3 exx., IV-VII.

1981; bosco di Manfredonia (FG), 750-800 m, 8 exx., 17.V.1982; Mattinata (FG), 17 exx., 15.V.1982; Manfredonia (FG), 1 ex., 21.IV.1981; Torre Testa (BR), 2 exx., 23.I.1977; Mesagne, bosco Preti (BR), 2 exx., 26.IV.1977; Martina F. , bosco Pianelle (TA), 400 m, 1 ex., 9.V.1987; Grottaglie (TA), 3 exx., 18.IV.1977; Otranto (LE), 3 exx., 6.III.1967; Torre Rinalda (LE), 3 exx., 17.IV.1977, LCA; Noci (BA), 2 exx., X.1982; Triggiano (BA), 1 ex., XI.1976; Manduria (TA), 17 exx., 5.XI.1967, 9.III.1969 e 16.XI.1969; S. Pietro in Bevagna (TA), 2 exx., 26.VI.1967, LDCA; Circummarpiccolo (TA), 25 exx., tutto l'anno, LCM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, 14 exx., 10.V.1991 e 31.VII.1991; Pietrapertosa, M.Impiso (PZ), 1200 m, 1 ex., 6.VII.1987; Mass. Pollino, Vacquarro (PZ), 1450 m, 8 exx., 4.VII.1985; Piano Ruggio (PZ), 1550 m, 11 exx., 12.VII.1977; Timpa del Demonio (PZ), 1300 m, 4 exx., 7.VI.1987; Policoro (MT), 77 exx., tutto l'anno; Oasi WWF Lago di San Giuliano (MT), Ponte Cagnolino, trappola luminosa, 2 exx., 23.IX.1992, LCA; **Calabria:** Mass. Pollino, Campotenese (CS), 17 exx., 22.VII.1983; Sila, M.Altare (CS), 1400 m, 4 exx., VII.1981, LCA; **Sicilia**: Gela (CL), rive biviere, 5 exx., 14.VI.1993, LCA.

NOTE ECOLOGICHE: Vaglio in lettiera di latifoglie o detriti vegetali; anche in trappole luminose.

DISTRIBUZIONE GEOGRAFICA: Germania, Ungheria, sud Europa. Luigioni (1929: 535) la considera sinonimo di *M. transversalis* Gyll.; Johnson (1972) la eleva a rango specifico; Liguria, Toscana, Lazio, Puglia e Sardegna (Zampetti, 1979: 96), Basilicata (Fancello, 1985: 24, Policoro), Calabria (Angelini, 1988: 78, M.Pollino, Campotenese), Sicilia (Lundberg, Palm & Trottesdam, 1987a: 48), I. Lampedusa (Angelini, 1995: 566).

Migneauxia crassiuscula (Aubé, 1850)

MATERIALE ESAMINATO: **Puglia:** Ginosa, Salinelle (TA), 6 exx., 17.XII.1978; Francavilla F. (BR), prato, 1 ex., 15.VIII.1993, LCA; Taranto, 1 ex., 29.II.1976; Circummarpiccolo (TA), 21 exx., II-IV.1977, 5.I.1992, 13.XI.1988, 13.XII.1992 e 24.X.1993; str. Carosino-Francavilla (BR), 1 ex., 14.XII.1986; foce F. Lato (TA), 9 exx., 11.XI.1990, LCM; Sammichele (BA), 2 exx., 2.IV.1985; Valenzano (BA), 2 exx. 4.III.1984; Gravina di Puglia, 5 exx., 19.X.1984 e 21.IV.1987; Rutigliano (BA), 4 exx., 4.X.1984 e 10.IV.1985; Castellana Grotte (BA), 1 ex., XI.1989; Casamassima (BA), 3 exx., 8.IX.1982 e XI.1984, LDCA; S. Basilio (TA), querceta, 14 exx., 16.XI.1989, 17.IV.1988 e 31.XII.1994, LCAM; **Basilicata:** Ris. nat. WWF Lago di Pignola (PZ), 700 m, trappola luminosa, 24 exx., 14-31.VII.1991; foce fiume Basento (MT), 20 exx., 28.I.1979; Pisticci Scalo (MT), vaglio graminacee, 1 ex., 2.I.1994, LCA; Rifreddo (PZ), 1 ex., 23.IX.1987, LDCA; Oasi WWF Lago di San Giuliano (MT), 100 m, Ponte Cagnolino, trappola luminosa, 120 exx., varie date, 1992; Policoro (MT), 10 exx., I-XI, vari anni, LCAM; **Calabria:** Aspromonte, Africo Nuovo (RC), 10 exx., 20.XI.1993, LSCAS; Delianuova (RC), 1000 m, bivio Brandano, castagneto, 1 ex., 15.X.1993; Gambarie (RC), M.Basilicò, 1300 m, castagneto, 1 ex., 1.V.1993, LCA.

NOTE ECOLOGICHE: Vaglio in lettiera di latifoglie, detriti vegetali anche fluitati o sotto corteccia di alberi deperienti; anche in trappole luminose o sotto pietre nei prati.

DISTRIBUZIONE GEOGRAFICA: Ungheria, Slovacchia, Dalmazia, Croazia (Horion, 1961: 56), Italia, Turchia, Siria. Tutta Italia e Isole (Luigioni, 1929: 536).

Migneauxia lederi Reitter, 1875

MATERIALE ESAMINATO: **Basilicata:** Oasi WWF Lago di San Giuliano (MT), 100 m, Ponte Cagnolino, trappola luminosa, 2 exx., 23-25.VIII.1992 e 29.VIII.1992, LCA; **Calabria:**

Aspromonte, Africo Nuovo, prato, 2 exx., 17.XI.1993, LSCA; **Sicilia:** Sambuca di Sicilia, Misilifurme (AG), prato, 24 exx., 11.XII.1993; Castellammare del Golfo (TP), Castello Baia, 36 exx., 9.XII.1993, LSCAS; Mazara del Vallo (TP), Gorghi Tondi, lecceta, 10.XII.1993; Aci Castello (CT), prato, 3 exx., 26.XI.1993, LSCA.

DISTRIBUZIONE GEOGRAFICA: Specie nuova per la fauna italiana, nota di Italia, ?Spagna, Turchia. Basilicata! Calabria! Sicilia!

RINGRAZIAMENTI.

Desideriamo, anche in questa sede, ringraziare gli amici prof Luigi De Marzo (Università della Basilicata, Potenza), sig Vincenzo Lillo (Monopoli), dr Fernando Montemurro (Taranto) e dr Giorgio Sabella (Università di Catania) per avere posto a nostra disposizione il materiale da loro reperito e qui trattato e il sig Luca Fancello (Cagliari) e il dr Colin Johnson (Manchester) per avere studiato parte del materiale.

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Mem. Soc. entomol. ital., 77: 241-258 *31 marzo 1999*

Mario E. FRANCISCOLO

About *Glipostena* with description of three new species (Coleoptera Mordellidae)*

Abstract - A redefinition of *Glipostena* is proposed after males of two known species - *pelecotomoidea* (Pic, 1911) and *congoana* Ermisch, 1952 (Horák, 1998) - and of three new species herewith described from Nigeria and Indonesia became available. A key to fossil and recent species is updated using new characters emerged from this study and from Horák's revision (1998). Some vegetational patterns of localities where the known and the new species came from, with comments on phaenology of the two sexes which resulted to be quite outphased (with extreme rarity of males), are supplied. There is evidence that *Glipostena* has almost exclusively noctural flight activity.

Riassunto - *A proposito di* Glipostena *con descrizione di tre nuove specie (Coleoptera Mordellidae).*
Si propone la ridefinizione di *Glipostena*, dopo che i maschi di due specie note - *pelecotomoidea* (Pic, 1911) e *congoana* Ermisch, 1952 (Horák, 1998) - e di tre nuove specie qui descritte di Nigeria e Indonesia divennero disponibili. Si aggiorna la tabella di determinazione delle specie fossili e recenti usando nuovi caratteri emersi da questo studio e dalla revisione di Horák (1998). Si forniscono notizie sulla fisionomia degli ambienti vegetazionali dai quali provengono le specie note e quelle qui descritte, con commenti sulla fenologia dei due sessi che appare notevolmente sfasata (con estrema rarità di comparsa dei maschi). Sembra che *Glipostena* abbia attività di volo quasi esclusivamente notturna.

Key words: Mordellidae, *Glipostena*, position redefined, new species, Nigeria, Indonesia.

Glipostena Ermisch, 1941 was known, for over the past 50 years, upon quite a few female specimens only and its position in the system of Mordellidae remained uncertain. Finally, having males of two species become available to Horák (1998), with the addition of males of three other new species herewith described and identification of important new characters, a complete redefinition of the genus is now possible.

Glipostena Ermisch, 1941

Glipostena Ermisch, 1941: 723; 1950: 80; 1952: 84; Franciscolo, 1962: 118; 1967: 681; Nomura, 1978: 255; Horák, 1998: 29.

TYPE SPECIES: *Mordellistena pelecotomoidea* Pic, 1911: 189, by original designation (Ermisch, 1941: 723).

DISTRIBUTION: Southern Japan (Nomura, 1978: 255); Taiwan (Pic, l. c., sub Formosa); Philippines (Franciscolo, 1967: 68); India, Sri Lanka, Vietnam, Singapore, Sumatra, Borneo, New Guinea (Horák, 1998: 30, 32); Sulawesi (hoc opus); Nigeria (h. o.); Congo basin, Cameroon, Comores (Ermisch, 1952: 86); Sierra Leone, Gabon (Horák, 1998: 32); Angola (Franciscolo, 1962: 122). Species from Philippines still undescribed (females only available).

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* 69th contribution to the knowledge of Mordellidae and Scraptiidae.

Probably more widely spread in african and asiatic tropical and subtropical forest belt. So far only occasional captures at light and Malaise traps; biology unknown.

REDESCRIPTION (to integrate Ermisch's original description).

General aspect: see Nomura, 1978, colour plate 128, fig. 2.

Dimensions of known living species oscillating from 8.0 mm (11.0 mm with pygidium) in males to 11.4 mm (15.0 with pygidium) in females.

No other living Mordellistenini reach such lengths. The fossil *G. sergeli* Ermisch, 1943 (baltic amber) only is 5 mm long (6.5 mm with pygidium).

Eyes deeply emarginate behind antennal articulation, coarsely faceted (facet diameter from 0.040 to 0.045 mm), moderately hairy peripherally (rarely at center too); hypocranial expansions quite broad; tempora obsolete (cfr. Franciscolo, 1962a, fig. 6A, 12A,B,C).

Antennae linear; antennomeres dilating from the 5th one; 5th to 10th not serrate, more or less of same length and breadth (fig. 3, 27, 28, 47, 48 h. o. and 3 and 10 in Horák, 1998); 11th antennomere, in at least three species, provided with unusual distal processes in both sexes, varying in number from two to four (fig. 4, 34, 35, 53, 54 h. o.); this character, discovered by a pure case of serendipity, was so far unknown in Mordellidae.

Labial and maxillary palpi with last palpomere exactly triangular-equilateral in both sexes; paraglossae and ligula of conventional morphology, fit for pollen and/or nectar feeding (fig. 9, 10).

Epicoxal suture widely exposed like in *Glipodes* Leconte, 1862 (Franciscolo, 1962b, fig. 17); metacoxal process distally bifide, apices rounded (fig. 8 h. o.; Franciscolo, 1962a, fig. 12-0).

Scutellum small, triangular-equilateral (Franciscolo, 1962a, fig. 12-H).

Pro- and meso tarsi (fig. 5) with penultimate tarsomere deeply bilobed and excised almost to its proximal fifth; all other tarsomeres with distal margin from broadly to narrowly concave. Mesotibiae longer than mesotarsi (ratio: from 1.28-1.33 in african species to 1.46-1.82 in asiatic species: fig. 2, 25, 26, 45, 46 h. o.).

Hind legs (fig. 1, 23, 24, 42, 43 h. o.): tibia, besides the preapical ridge, with two to four strongly oblique lateral ridges, the upper one occasionally either hardly visible (fig. 1) or, at least in females (fig. 24) extremely long, almost reaching distal femoral margin; first metatarsomere with two to three oblique ridges; second and third with one long lateral ridge running almost parallel to the dorsal margin. Claws quadridentate, with long, hairy, acuminate basipulvillus (fig. 6). Hind tibial spurs unequal, inner one always much longer than outer one; such spurs are covered by an extremely short pubescence on their distal two thirds, glabrous proximally (fig. 44). The fossil *G. sergeli* displays a quite different ridge arrangement (Ermisch, 1943, fig. 3).

Pygidium elongate, straight, conical, constantly much longer than hypopygium (fig. 11).

8th and 9th introflected urosterna of males as in fig. 12, 32, 35 and 13, 33, 51, respectively.

Penis typically mordelloid, long up to two thirds of the entire insect's length, from

1.84 to 2.43 times long as tubular process of phallobase (fig. 14-15, 29-30, 59-50).

Parameres as long as tegmen (fig. 21-22, 36-37, 56-57). Left paramere (fig. 17, 19, 38, 40, 58, 60) in form of elongate clava (quite distally dilated in *congoana*, fig. 14 in Horák, 1998: 33), without ventral process; right paramere (fig. 18, 20, 39, 41, 59, 61) with ventral branch short, truncate (parameres of type A, Franciscolo, 1957: 225, fig. 15-2). This type A was till now unknown in Mordellistenini.

The mesotibiae longer or much longer than mesotarsi was considered by Ermisch, 1950: 81 as good discriminant versus *Glipostenoda* Ermisch, 1950: 81; nevertheless he wrote for *congoana* Ermisch, 1952: 86 "Die Mittelschienen sind viel kürzer als die Mitteltarsen"; I agree with Horák (1998: 32): it was an oversight by Ermisch checked on the type specimen by Horák himself.

For pure identification purposes with no phylogenetical implications couplets 20 (21) and 21 (20) should be modified as follows in my key (Franciscolo, 1967: 68):

20 (21) Last maxillary palpomere triangular, equilateral in both sexes, of *Glipa* type; eyes broad, quite coarsely faceted (facet diameter around 0.045 mm) with extremely broad hypocranial expansions. Epicoxal suture well exposed. Last antennomere in both sexes with peculiar apical processes. Parameres of type A, strongly asymmetric, left one claviform, not branched; right one longer than left one, with ventral branch truncate and much shorter than dorsal one; parameres as long as phallobase .....*Glipostena* Ermisch, 1941: 723

21 (20) Last maxillary palpomere triangular either isosceles or scalene, different in the two sexes (*Mordella* type); eyes less broad, coarsely faceted, each facet not more than 0.035 mm in diameter; hypocranial expansions less developed. Epicoxal suture concealed. Last antennomere in both sexes without apical processes. Parameres of type D, rather symmetric; a ventral and dorsal branch on both parameres always present, rigth paramere not longer than left one. Parameres shorter than phallobase .....*Glipostenoda* Ermisch, 1950: 81

Items from 22 (25) on unvaried.

From a phylogenetical standpoint *Glipostena,* due to a series of strongly apomorphic characters, belongs in a separate, highly evolved clade, sharing with the rest of Mordellistenini one character only, i. e. the presence of multiple lateral ridges on metatibiae and metatarsi. Its similitude with *Glipodes* Leconte, 1862, as proposed by me (Franciscolo, 1962: 120) is undoubtedly the result of homoplasic events; "analogy" with *Glipa* Leconte, 1857 as mentioned by Ermisch (1941: 723; 1950: 80) is quite faint and limited to the structure of last maxillary palpomere identical in both sexes.

Another unusual apomorphic character status in *Glipostena* is the extremely reduced pubescence on metatibial spurs (fig. 44 h. o.), a status which reminds the completely glabrous spurs in some Melandryidae and in all Rhipiphoridae (Crowson, 1967: 119)[1].

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[1]. Krell (1996: 47-48) says that Rhipiphoridae should read Ripiphoridae; the trifle problem, already raised by Neave (1940), should be presented to the International Commission on Zoological Nomenclature (Art. 41, International Code of Zoological Nomenclature). My opinion on the subject coincides with Lawrence's and Newton's one (1995: 889): they wrote Rhipiphoridae.

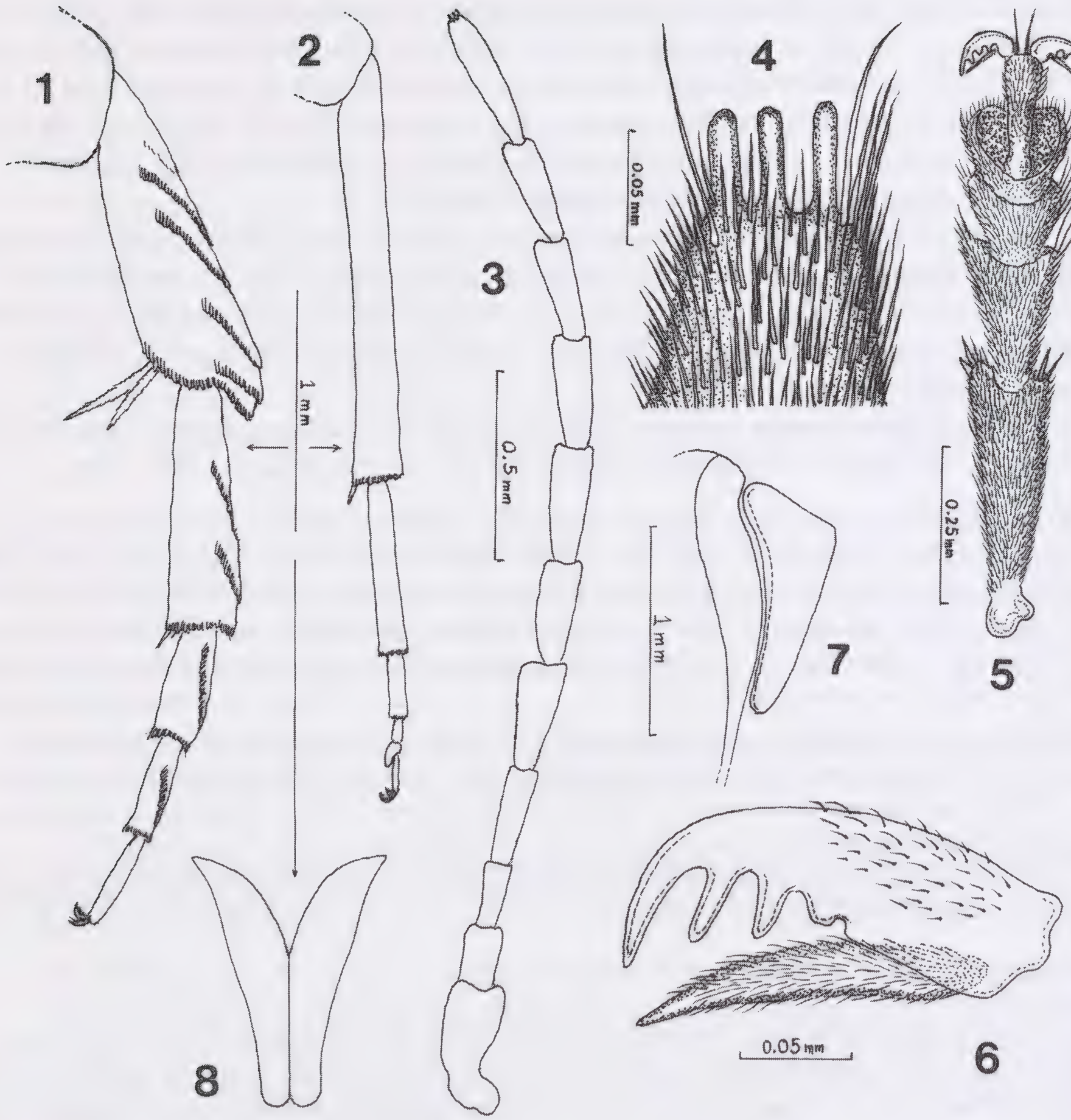

Fig. 1-8. *Glipostena medleri* n. sp. (holotype, Ile Ife, Nigeria): 1 - left metatibia and metatarsus; 2 - left mesotibia and mesotarsus; 3 - right antenna; 4 - tip of 11th right antennomere; 5 - right protarsus; 6 - right claw of preprotarsus; 7 - proximal margin of right elytral epipleura and right metepisternum; 8 - metacoxal process. Scales in mm.

DESCRIPTION OF NEW SPECIES

For terminology and method see Franciscolo, 1957.

Glipostena medleri n. sp.
(fig. 1-22 h. o.)

1 male holotype (MCSNG), ICZN recommend. 72-D, 1 male, paratype, my coll., 1 male, paratype (MCSNG), label: "Nigeria, W. State, Ile Ife, V-1973, leg. J. T. Medler".

Dimensions (average on three type male specimens), in mm: head 1.50 x 2.20; pronotum 2.23 x 2.65; elytra 6.1 x 2.55; total length 9.83; pygidium 3.15 x 1.15.

General form slender, parallelsided, strongly convex, maximum width at hind side

of pronotum; sides of elytra almost straight, feebly constricted behind humeral callus which is rather marked.

Ground color uniformly chestnut; buccal parts pale brown; antennae brown; hind tibial spurs brown.

Pubescence coppery, sericeous, decumbent with some golden shines. Head transverse, broader than long (ratio 1.46), narrower than pronotum, convex; occipital margin from above in a broad regular curve without medial abutment; from behind perfectly straight, without medial concavity; temporal fringe absent; temporal edge well marked, moderately protruding; sculpture showing rather impressed, circular points, interstices coarsely and transversely shagreened. Eyes quite broad, occupying dorsally one fourth of upper cranial surface, very coarsely faceted (facet diameter 0.040 mm), very moderately hairy peripherally, glabrous at center, totally reaching occiput, with extremely broad hypocranial expansions. Labium fig. 9. Maxilla fig. 10. Antennae (fig. 3), when folded, hardly attaining hind angles of pronotum; tip of 11th antennomere with three subcylindrical processes (fig. 4).

Pronotum broader than long (ratio 1.18), subtrapezoidal, moderately transverse, feebly attenuated anteriorly; sides, from above, broadly convex; sculpture showing slightly semilunar, well impressed points, interstices coarsely and sinuously vermiculate; anterior lobe narrow, moderately protruding and sinuate at sides; marginal edge anteriorly quite marked, not dilated at anterior angles, obsolete shortly before hind angles; anterior angles broadly obtuse (130°), narrowly rounded off at vertices; hind angles narrowly obtuse (105°) largely rounded off at vertices; basal lobe broad, protruding, definitely sinuate at sides, flat rounded at apex.

Scutellum triangular equilateral with straight sides and acuminate vertex, bearing the same pubescence as elytra and pronotum.

Elytra 2.4 times long as their combined breadth at shoulders, moderately convex, strongly parallelsided, attenuated after their distal fourth, rounded together at apices; sculpture of the file-like type, deeply impressed, interstices strongly shagreened.

Metepisterna and elytral epipleura fig. 7 (epipleura humerally slightly sinuate).

Metacoxal process fig. 8.

Ratios of abdominal sterna: 11: 8: 7: 8: 16. Pygidium 1.55 times long as hypopygium, slender, not carinate, straight, narrowly and obliquely truncate at tip (fig. 11), covered by uniform, dense and rough dark pubescence; lateral grooves deep, reaching the half of pygidium; hypopygium distinctly bilobate at tip.

Parameres of type A; attached to phallobase as in fig. 21, 22; in various orientations figs. 17-20; 8th introflected urosternum fig. 12; 9th introflected urosternum with hemipleurites fig. 13; tubular process of phallobase fig. 14; penis (fig. 15 and 16) 4.8 mm long, practically almost half the whole length of insect including pygidium; ratio length of penis: length of tubular process = 1.84.

Pro- (fig. 5) and mesotarsi agreeing with genus' characters; protibiae straight, not ciliate; profemora slightly sinuate distally; mesotibiae longer than mesotarsi (ratio 1.46). Metatibiae and metatarsi fig. 1; inner metatibial spur longer than outer one (ratio 1.4); ratio first metatarsomere: inner tibial spur 2.14. Ridge formula: T: (1)+3; t1: 2; t2: 1; .t3: 1. For tarsal ratios see fig. 1, 2, 5.

Dedicated to its collector J. T. Medler, author of a check list of nigerian insects (1980).

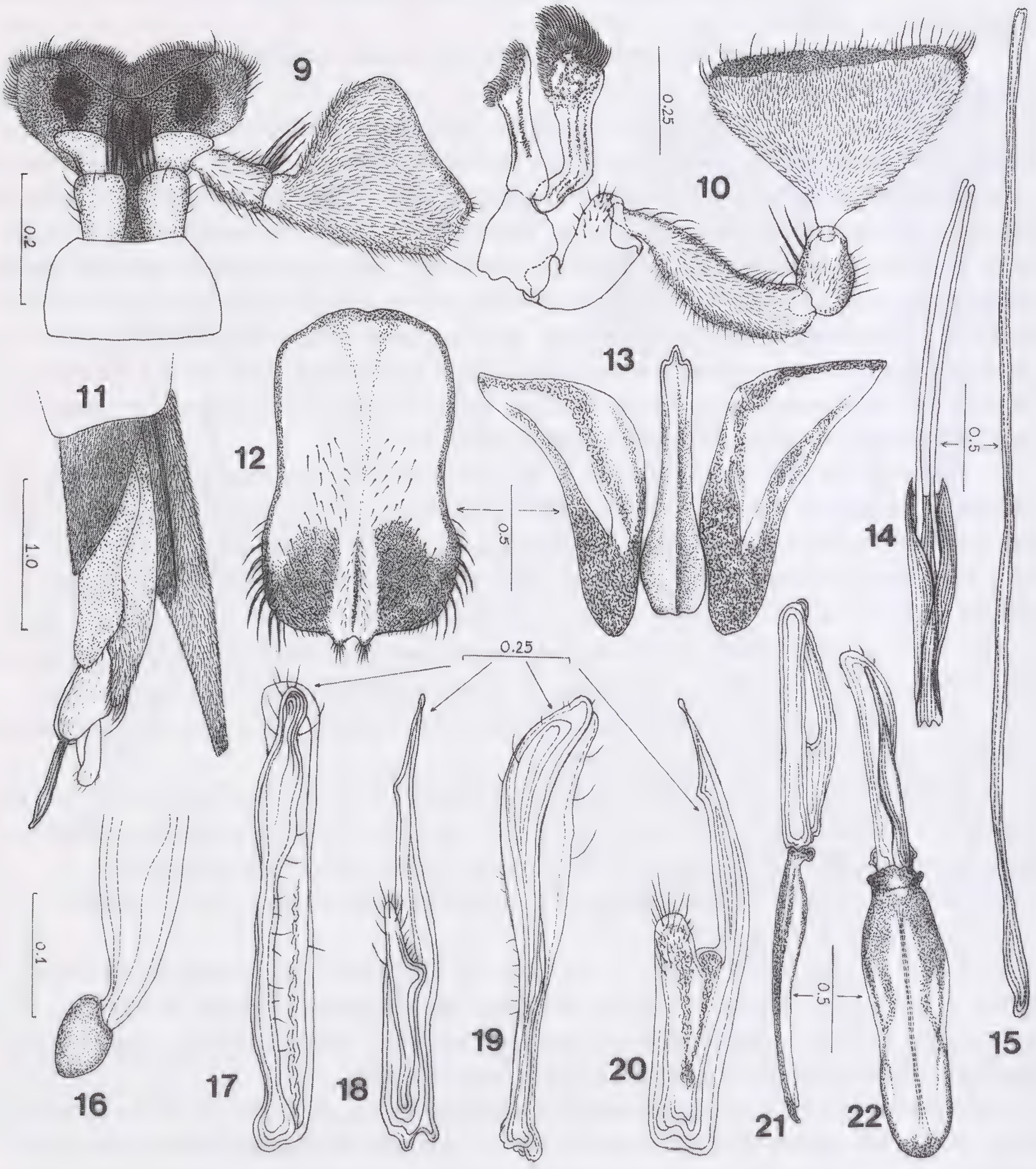

Fig. 9-22. *Glipostena medleri* n. sp. (Ile Ife, Nigeria), holotype: 9 - labium, ligula, prementum, dorsally; 10 - maxilla, dorsally, right; paratype, same locality: 11 - last urosterna with genital sclerites extroflected, left; holotype, same locality: 12 - 8th introflected urosternum, ventrally; 13 - 9th introflected urosternum, with hemipleurites, ventrally; 14 - tubular process of phallobase, dorsal; 15 - penis, dorsally; 16 - tip of penis, laterally from left; 17 - left paramere, dorsally; 18 - right paramere, dorsally; 19 - left paramere, turned 90° to left; 20 - right paramere turned 90° to left; 21 - parameres attached to phallobase, laterally from left; 22 - same, ventrally. Scales in mm.

Ile Ife falls well within the "zone guinéenne" (Schnell, 1950) of the west african rain forest belt, with 1.3-2.0 m of annual rainfall.

No bionomic information is available.

Glipostena dimorpha n. sp.
(figs. 23-61 h. o.)

1 male holotype (NHM London), label "Indonesia, Sulawesi Utara, Dumoga-Bone National Park, lowland forest, Hog's Back Camp, m 492, IX-1985, malaise trap" 1 female allotype (MCSNG), label: same, "m 200 ca, Malaise trap, III-1985";.4 female paratypes (NHM London, MCSNG, my coll.) label: same, "m 200 forest edge, II-1985", "III-1985" and "VI-1985". All collected by Project Wallace expedition 1985.

Dimensions: male holotype (mm): head 1.65 x 2.15; pronotum 2.18 x 2.50; elytra 6.10 x 2.55; total length 9.93; pygidium 1.60 x 0.70; allo-paratypes: head 1.90 x 2.60; pronotum 2,50 x 3.20; elytra 7.00 x 3.15; total length 11.40; pygidium 2,80 x 0.80 (average on five females).

General form as in *G. medleri* n. sp., less convex, humeral callus moderate, elytra not constricted behind it.

Ground color uniformly dark chestnut; buccal part brownish-yellow; antennae reddish brown in both sexes.

Pubescence uniformly dark chestnut, sericeous, decumbent, with sparsely arranged golden hairs in both sexes.

Head transverse, broader than long (ratio in both sexes 1.37), narrower than pronotum, convex; occipital margin from above like in *G. medleri* n.sp.; from behind with strong medial concavity; temporal fringe absent; temporal edge moderately marked and little protruding; ground sculpture like in *medleri*. Eyes broad, occupying almost half of total upper cranial surface in both sexes, coarsely faceted (one facet 0.040 mm), rather densely hairy at center as well, reaching occiput, with very broad hypocranial expansions.

Labium and maxilla like in *medleri*, in both sexes. Antennae (fig. 27 male, 28 female) when folded not attaining hind angles of pronotum in male, hardly its half in females; 11th antennomere in male with two short distal processes (fig. 34), four in female (fig. 35). Pronotum broader than long (ratio 1.14 in male, 1.28 in female), subtrapezoidal, transverse, moderately attenuated anteriorly; sides from above slightly convex; ground sculpture like in *medleri*; anterior lobe in male narrow and protruding, slightly sinuate at sides, in female broader and less protruding; marginal edge well marked, not dilated at anterior angles, obsolete shortly before hind ones; anterior angles more obtuse in male (120°) than in female (105°), sharp at vertices; sides, laterally, moderately convex; hind angles narrowly obtuse in both sexes (94°-95°), broadly rounded at vertices; basal lobe broad, protruding, deeply sinuate at sides, flat-rounded at apex in both sexes.

Scutellum exactly triangular with slightly rounded sides and vertex, covered by golden-whitish pubescence unlike pronotum and elytra, in both sexes.

Elytra 2.4 times (male) - 2.22 times (female) long as their combined breadth at shoulders, convex, parallelsided, attenuated after their distal third, narrowly separately rounded at apices; sculpture showing strongly impressed, densely arranged file-like

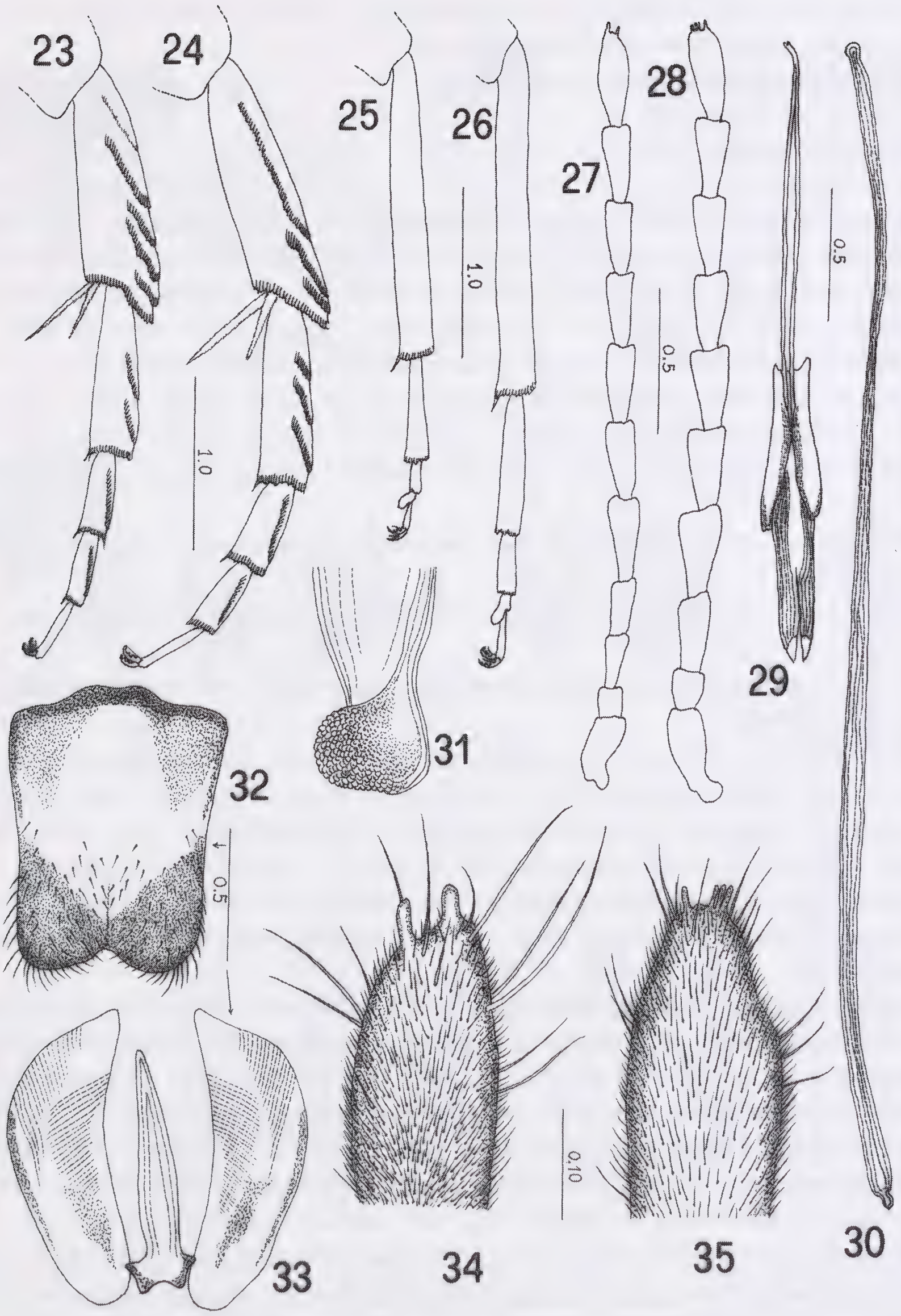

Fig. 23-35. *Glipostena dimorpha* n. sp. (Hog's Back Camp, Dumoga-Bone National Park, Sulawesi Utara, Indonesia), holotype: 23 - left metatibia and metatarsus; allotype: 24 - left metatibia and metatarsus; holotype: 25 - left mesotibia and mesotarsus; allotype: 26 - same; holotype: 27 - right antenna; allotype: 28 same; holotype: 29 - tubular process of phallobase, dorsally; 30 - penis, dorsally; 31 - tip of penis, laterally from left; 32 - 8th introflected urostenum, ventrally; 33 - 9th introflected urosternum, with hemipleurites; 34 - tip of 11th antennomere; allotype: 35 - same. Scales in mm.

points, interstices transversely microreticulate.

Metepisterna truncate at hind margin, episterno-metasternal suture moderately convex; elytral epipleura not sinuate proximally.

Metacoxal process like in *medleri*.

Ratio of abdominal sterna: male 11: 10: 12: 8: 12; female 17: 14: 12: 12: 18. Pygidium in male 2.6 times long as hypopygium, in female 1.97 times, rather slender, not carinate, sharply truncate at tip, covered by dark and rough pubescence; lateral grooves lightly impressed, evanescent at half of pygidium in both sexes. Hypopygium flat rounded at tip in male with an unperceivable indentation; in female simply flat rounded.

Parameres of type A: fig. 56-57 (attached to tegmen), 58-61 in various orientations. 8th introflected urosternum fig. 32; tubular process of phallobase fig. 29; penis (fig. 30, 31) 1.85 times long as tubular process and 4.8 mm long (almost one third of insect's length including pygidium); 9th introflected urosternum with hemipleurites fig. 32.

Pro- and mesotarsi agreeing with genus' pattern; protibiae straight without hairs in both sexes; profemora simple; mesotibiae fig. 25 (male) and 26 (female), longer than mesotarsi (ratio 1.46, male, 1.53, female). Metatibiae and metatarsi fig. 23 (male) and 24 (female); inner metatibial spur longer than outer one (ratio 1.4); ratio first metatarsomere: hind inner tibial spur 1.85 in both sexes. Ridge formula: male T: (1)3, t1: 2; t2: l; t3: 1; female T: 2; t1: 3; t2: 1; t3: 1. Tarsal ratios: anterior (male) 12: 6: 4: 5: 5; (female) 13: 7: 6: 5: 8; middle fig. 25, 26; posterior fig. 23, 24.

Glipostena hogsbacki n.sp.
(fig. 42-61 h. o.)

1 male holotype (NHM London); label "Indonesia, Sulawesi Utara, Dumoga-Bone National Park, lowland forest, m 492, Hog's Back Camp, IX-1985, Malaise trap"; 1 female allotype (MCSNG) same "X-85"; 1 female paratype (my coll.) same label but "lowland forest, m 200 ca., II-1985, Malaise trap"; 1 female paratype, same label but "lowland forest, m 300-400, XII-1985, Malaise trap" (MCSNG). All collected by Project Wallace expedition 1985.

Dimensions male holotype (mm): head 1.60 x 2.30, pronotum 2.10 x 2.35; elytra 6.00 x 2.70; total length 9.70; pygidium 2.40 x 0.75. Average dimensions on three females allo-paratypes: head 1.70 x 2.50; pronotum 2.50 x 3.15; elytra 6.50 x 3.18; total length 10.70; pygidium 2.70 x 0.80.

General form slender, parallelsided; moderate humeral callus; elytra slightly concave at outer margin, not constricted behind humeral callus.

Ground color uniformly chestnut; buccal parts brown; antennae brown; hind tibial spurs chestnut.

Pubescence uniformly dark, sericeous, decumbent with sparse golden hairs and some bluish casts on elytra and base of pygidium.

Head transverse, broader than long (ratio: male 1.43, female 1.46), much narrower than pronotum (ratio: male 0.76, female 0.68), convex; occipital margin from above in broad regular curve, from behind deeply concave at middle; temporal fringe absent; temporal edge

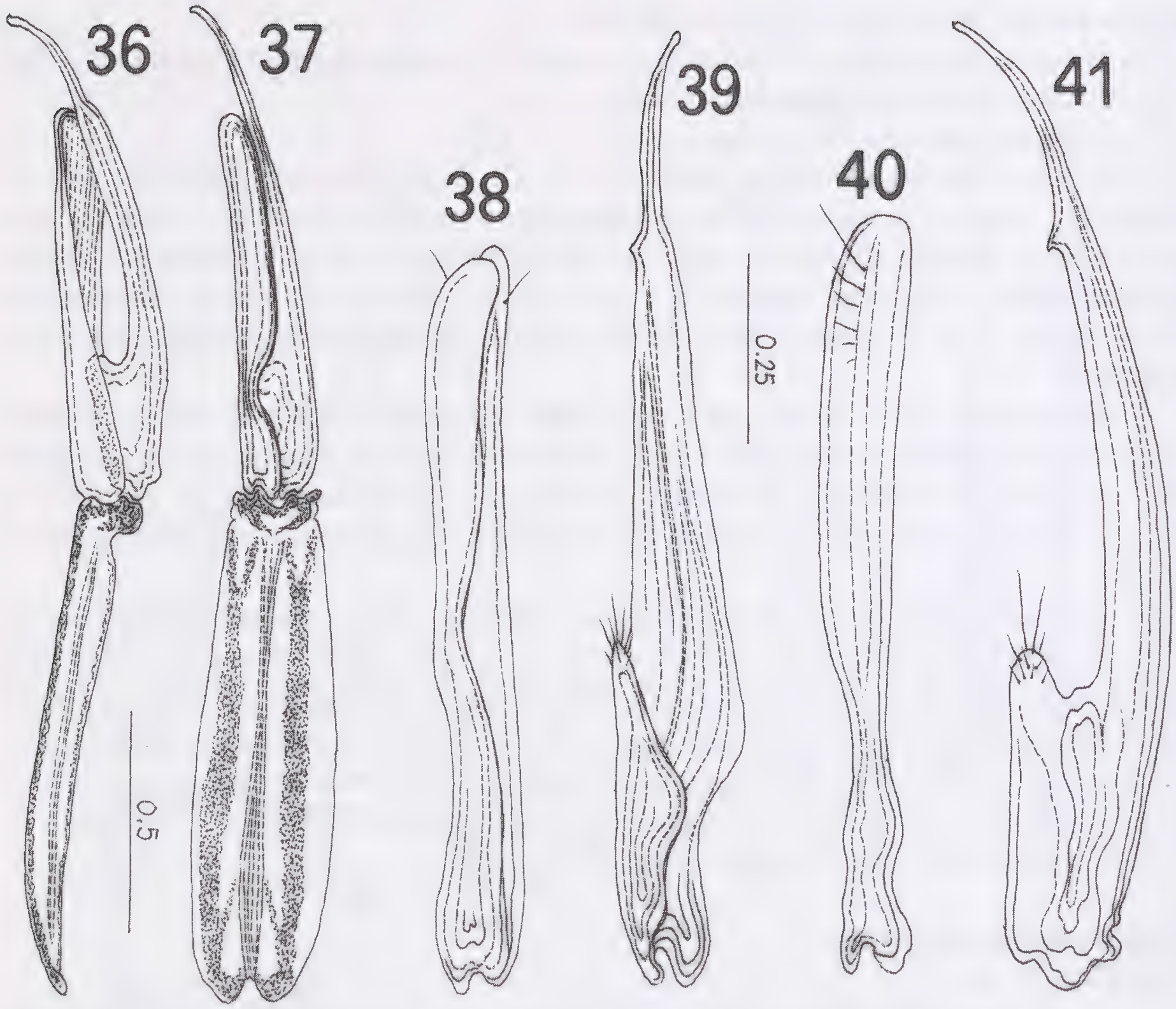

Fig. 36-41. *Glipostena dimorpha* n. sp. holotype (same locality as in fig. 23-35): 36 - parameres attached to phallobase, laterally from left; 37 - same, ventrally; 38 - left paramere, dorsally; 39 - right paramere, dorsally; 40 - left paramere, turned 90° to left; 41 - right paramere, turned 90° to left. Scale in mm.

marked, moderately protruding; sculpture showing small, round, little impressed points with interstices transversely shagreened. Eyes broad, occupying 8/10th of upper cranial surface, coarsely faceted (facet 0.042 mm), densely and totally hairy, completely reaching occiput, with quite broad hypocranial expansions in both sexes. Labium and maxilla like in *medleri* and *dimorpha* in both sexes. Antennae (male fig. 47, female 48) when folded attaining 4/5th of pronotal sides in both sexes; tip of 11th antennomere with four distal processes (fig. 53) in male, three (fig. 54) in female.

Pronotum moderately broader than long (ratio: male 1.35; female 1.26) subtrapezoidal, transverse, moderately attenuated anteriorly; sides from above slightly convex; sculpture showing dense file-like points with interstices irregularly shagreened; anterior lobe moderately protruding, feebly sinuate at sides; anterior marginal edge not dilated at anterior angles, completely obsolete at half of sides; anterior angles broadly obtuse (115°), sharp; sides, laterally, straight; posterior angles quite broadly obtuse (130°),

almost completely rounded off at vertices; posterior lobe broad, protruding, sinuate at sides, apically flat-rounded.

Scutellum triangular equilateral, vertex moderately rounded, covered by dense whitish pubescence.

Elytra 2.22 (male) -2.04 (female) times long as their combined breadth at shoulders, convex, parallelsided, attenuating after 2/3rds of their length, narrowly and separately rounded at apices; sculpture showing very coarse file-like points with transversely and sinuously arranged shagreen.

Metepisterna and elytral epipleura as in *dimorpha*.

Metacoxal process like in *medleri*.

Ratio of abdominal sterna: male 9: 8: 7: 8: 16; female 9: 8: 9: 9: 14. Pygidium in male 2.02, in female twice long as hypopygium, slender, not carinate, straight, rather acuminate and smoothed out at tip, with fine dark hairs and sparsely arranged golden hairs; lateral grooves impressed, fading out at about half the length of pygidium; hypopygium flat rounded at tip, with a small sinuosity at middle in male, more flat rounded and not sinuose in female.

Parameres of type A, fig. 56-57 attached to phallobase, 58-61 in various orientations. 8th introflected urosternum fig. 55; 9th introflected urosternon fig. 51. Penis (fig. 50, 52) 2.43 times long as tubular process of phallobase (fig. 49) and 0.9 times long as total length of insect including pygidium.

Pro- and mesotarsi in agreement with genus' pattern; protibiae moderately bent in male, straight in female, not ciliate; profemora simple in both sexes; mesotibiae (fig. 45, male, 46, female), ratio length of mesotibiae: mesotarsi 1.82 (male) and 1.71 (female). Metatibia and metatarsus fig. 42 (male) and 43 (female); inner spur of metatibiae 1/3rd longer than outer one in both sexes; ratio 1st metabasitarsomere: inner metatibial spur 1.75 (male), 2.0 (female). Ridge formula: male T: 4, t1: 3; t2; l, t3:.1; female T.3, t1: 3, t2: 1, t3: l. Tarsal ratios: anterior, male 8: 3: 2: 2: 4, female 9: 4: 2: 3: 4; middle fig. 45 (male), 46 (female), posterior fig. 42 (male), 43 (female).

Named after Hog's Back hill whose camp was in operation by Project Wallace 1985 for one year with permanent and periodically inspected Malaise traps.

Practical key to species

It replaces all former keys (Franciscolo, 1962: 120; Horák, 1998: 32).

1 (2) Fossil species (baltic amber, oligocene, Krzeminska et al., 1992: 188). Metatibial and metatarsal lateral ridges short, parallel to hind margin of each metamere, in number of six plus a rudimental upper one on metatibia; basimetatarsomere with five; second one with three; third with two. Antennae dilating from the fourth antennomere which is long as antennomeres 1st + 2nd + 3rd (fig. 1-3, Ermisch, 1943: 66). One well preserved and clearly observable specimen. Length, including pygidium, 6,5 mm.....† *sergeli* Ermisch, 1943: 65

2 (1) Recent species. Length, including pygidium, well over 7 mm, in female reaching 15 mm. Metatibial and metatarsal lateral ridges very long, strongly oblique, not parallel to hind margin of each metamere, in number not exceeding four (plus occasionnally an upper rudimental one) on metatibiae; metabasitarsomere with not more than three lateral ridges, similarly strongly oblique, second and third metatarsomeres with one long lateral ridge running al-

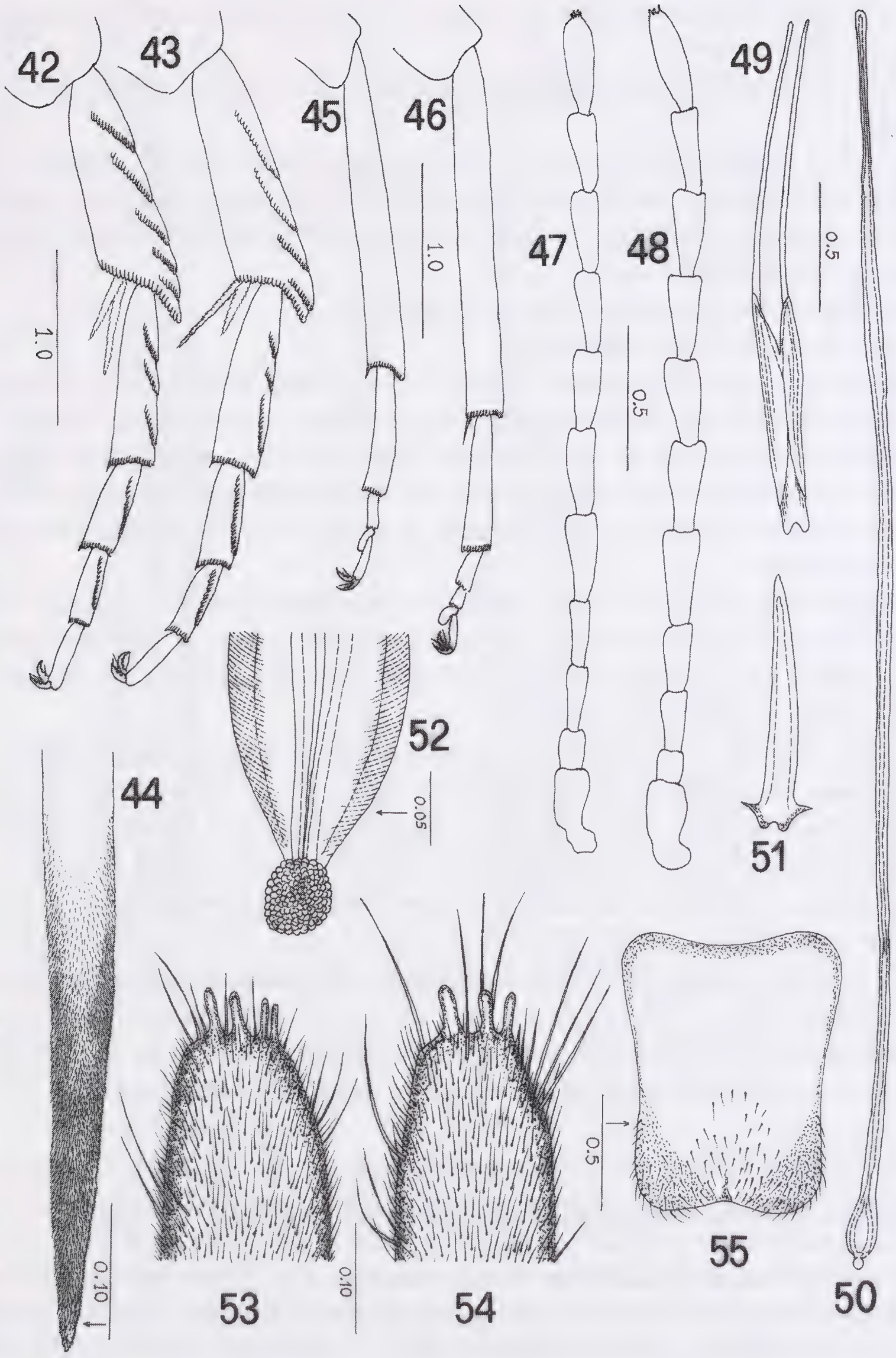

Fig. 42-55. *Glipostena hogsbacki* n. sp. (holotype, Hog's Back Camp, Dumoga-Bone N. P., IX-85, Sulawesi Utara, Indonesia): 42 - left metatibia and metatarsus; allotype (same loc., X-85): 43 - left metatibia and metatarsus; holotype: 44 - distal part of outer metatibial spur; 45 - left mesotibia and mesotarsus; allotype: 46 - same; holotype: 47 - right antenna; allotype: 48 - same; holotype: 49 - tubul. process of phallobase, dorsally; 50 - penis, dorsally; 51 - 9th introflected urosternum, ventrally (hemipleurites omitted); 52 - tip of penis, dorsally; 53 - tip of 11th antennomere; allotype: 54 - same; holotype: 55 - 8th introflected urosternum, ventrally. Scales in mm.

most parallel to upper margin of such tarsomeres (figs. 13, Ermisch, 1941: 124; 21, Ermisch, 1952: 85; 12-D, Franciscolo, 1962: 119; 5, 13, Horák, 1998: 31, 33; 1, 23, 24, 42, 43 h. o.). Antennae dilating from the fifth antennomere which is much shorter than 1st + 2nd + 3rd (fig. 12, Ermisch, 1941: 723; 12-G, Franciscolo, 1962: 119; 3, 10 Horák, 1998: 31, 33; 3, 27, 28, 47, 48 h. o.).

3 (4) Sculpture of pronotum peculiar: each point semilunar though simulating the usual file-like pattern; within each point three small pores each bearing one long hair (fig. 12-I, Franciscolo, 1962: 119). Width ratio of anterior side of metepisterna: posterior side = 2.8; ratio metepisternal width at center: epipleural width at same level = 2.2 (fig. 12-J, Franciscolo, 1962: 119). Ratio length of mesotibiae: length of mesotarsi (female) = 1.28. Antennae fig. 12-G, ibidem. Four oblique, rather short lateral ridges on metatibia, all of the same length and equidistant from one another; three on metabasitarsomere (fig. 12-D, ibid.). Females only known. Length 15.00 including pygidium. Angola (Luachimo forest); females from Gabon (Lac Zonanghé) and (highly doubtfully) from Madagascar (Horák, 1998: 30) need confirmation since Horák l. c. omitted to specify what kind of sculpture is on pronotum .....*nemoralis* Franciscolo, 1962: 118

4 (3) Sculpture of pronotum of the normal file-like type with one hair only within each point. Width ratio of anterior side of metepisterna: posterior side = over 4.0; ratio metepisternal width at center: epipleural width at same level = 1.5 (fig. 7 h. o.). Ratio length of mesotibiae: length of mesotarsi varying from 1.3 to 1.82.

5 (14) Length well beyond 10 mm in both sexes, including pygidium.

6 (7) Right paramere with dorsal branch robust, 1.7 times long as ventral branch, strongly bent downwards; ratio max. length: max. breath of right paramere = 3.0; left paramere quite strongly dilated preapically, its max. length: max. breath = 3.7 (fig. 14, Horák, 1998: 23); metatibiae with three to four strongly oblique lateral ridges, the uppermost one occasionally reaching knee (fig. 21, Ermisch, 1952: 86; 13, Horák, 1998: 33). Length 11.0-12.5 mm including pygidium. Sierra Leone, Cameroon, Gabon, Congo basin, Comores (Moheli Is.).... .....*congoana* Ermisch, 1952: 84

7 (6) Right paramere with dorsal branch slender, 1.95 to 3.2 times long as ventral branch, either straight or very slightly bent downwards; ratio max. length: max. breath of right paramere = 4.5 to 5.8; left paramere either moderately dilated distally or not dilated at all, with a ratio length: breath = 5.9-9.9 (fig. 6, Horák, 1998: 31; 19-20, 40-41, 60-61 h. o.); arrangement and morphology of metatibial ridges quite different (fig. 12, Ermisch, 1941: 723; 1, 23-24, 42-43 h. o.).

8 (9) Right paramere's dorsal branch with no extruding tooth preapically; maximum breadth of left paramere proximal; length ratio right paramere: left paramere = 1.25; ratio of cylindrical part of tubular process of phallobase: struts of tubular process = 2.96 (figs. 6-7, Horák, 1998: 31). Upper lateral ridge of metatibiae the longest, reaching knee (fig. 13-C, Ermisch, 1941: 724); antennomeres fifth to tenth three times long as broad at tip (fig. 12, l. c.: 723; 3, Horák, 1998: 31). Length 11.0-15.0 mm including pygidium. Sri Lanka, Singapore, Vietnam, Taiwan, Southern Japan .....*pelecotomoides* (Pic, 1911: 189)

9 (8) Right paramere's dorsal branch with a distinct preapical tooth at its inner side (fig. 20, 41, 61 h. o.); max. breadth of left paramere distal (fig. 19, 40, 60 h. o.); length ratio right paramere: left paramere = 1.0 to 1.29; ratio of cylindrical part of tubular process of phallobase: struts of tubular process = 1.71 to 2.23 (fig. 14, 29, 49 h. o.). Upper lateral ridge of metatibiae never reaching knee (fig. 1, 23-24, 42-43 h. o.); antennomeres fifth to tenth much less than three times long as broad at tip (fig. 3, 27-28, 47-48 h. o.).

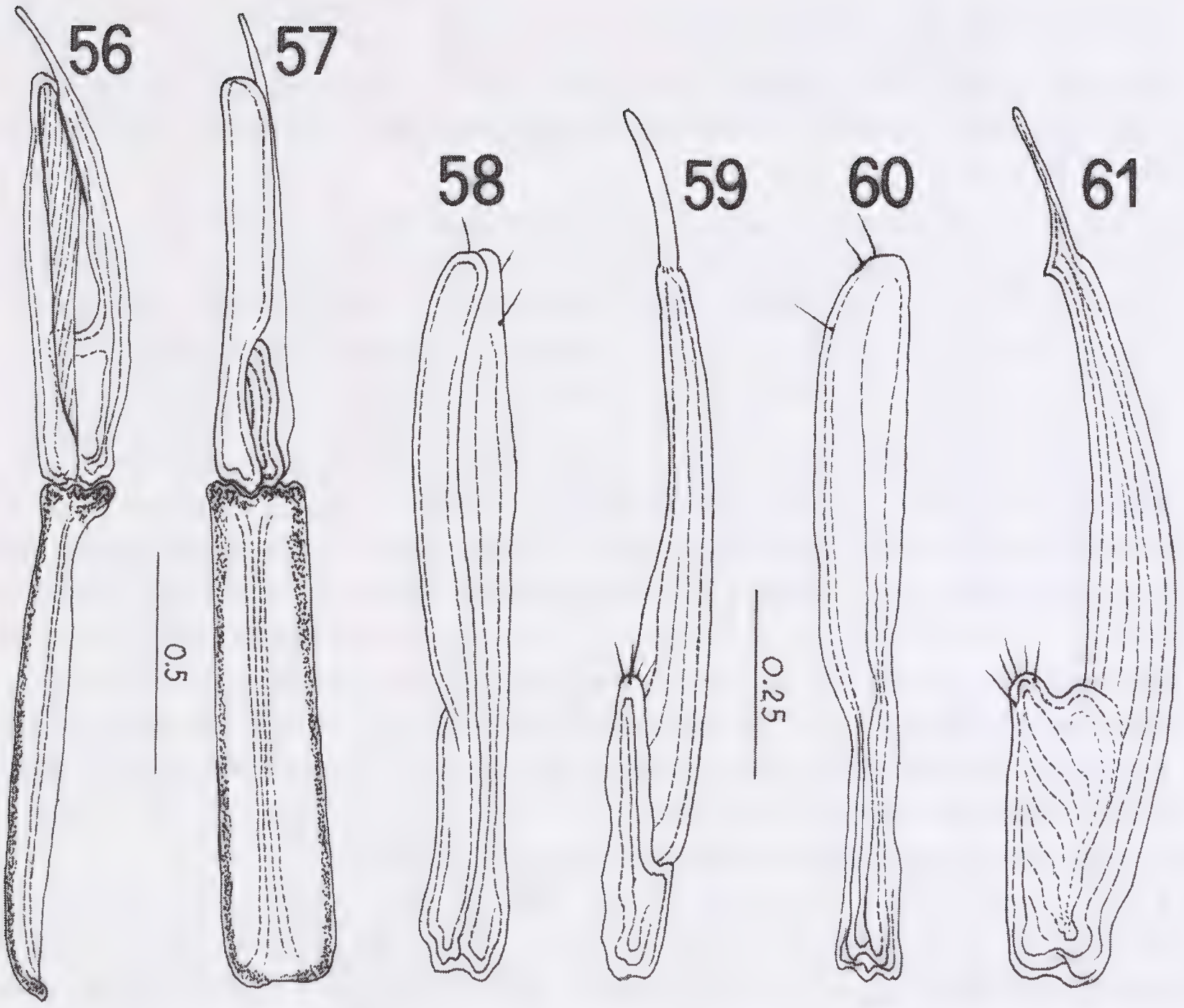

Fig. 56-61. *Glipostena hogsbacki* n. sp. (holotype, same loc. as in fig. 42): 56 - parameres attached to phallobase, laterally from left; 57 - same, ventrally; 58 - left paramere, dorsally; 59 - rigth paramere, dorsally; 60 - left paramere, turned 90° to left; 61 - right paramere, turned 90° to left. Scales in mm.

10 (11) Humeral side of elytral epipleura distinctly sinuate; metepisternal hind margin rounded (fig. 7 h. o.). 11th antennomere with three cylindrical processes (fig. 4 h. o.). 8th introflected urosternum distally shortly bilobate with coarse setae at lateral distal margins, broader distally than proximally (fig. 12 h. o.); 9th introflected urosternum medially carinate, with no distal lateral expansions and not distally indented at tip (fig. 13 h. o.). Left paramere distally distinctly clavate and expanded (fig. 19 h. o.); right paramere as long as left one, its dorsal branch 0.5 times long as whole paramere (fig. 18, 20 h. o.). Lateral ridges on metatibiae and metatarsi fig. 1 h. o. Males only known so far. Length 12.98 mm with pygidium. Nigeria (Ile Ife).....*medleri* n.sp.

11 (10) Humeral side of elytral epipleura not sinuate; metepisternal hind margin either straightly or obliquely sharply truncate. 11th antennomere either with two (fig. 34 h. o.) or four (fig. 53 h. o.) processes in male, three (fig. 50 h. o.) or four (fig. 35 h. o.) in females. 8th introflected urosternum (fig. 32, 55 h. o.) distally simply emarginate, broader proximally than distally; 9th introflected urosternum not carinate, with distal lateral expansions, distally indented at center (figs 33, 55 h. o.). Left paramere distally neither clavate nor expanded (fig. 40 h. o.); right paramere longer (ratio 1.21-1.29) than left one, its dorsal branch twice long as whole paramere (fig. 41, 61 h. o.). Lateral ridges on metatibiae and metatarsi fig.23, 24, 42, 48 h. o.

12 (13) Sexually dimorphic species: lateral ridges in male are three on metatibia plus a rudimental upper one and two on metabasitarsomere (fig. 23 h. o.); in female two only metatibial lateral ridges, upper one twice long as lower one and three lateral ridges on metabasitarsomere (fig. 24 h. o.). 11th antennomere in male with two short apical processes (fig. 34 h. o.), in female four rather short processes (fig. 35 h. o.). 8th introflected urosternum (fig. 32 h. o.) proximally trisinuate, convex, distally rather deeply emarginate; 9th one (fig. 33 h. o.) broadly emarginate at apex and with short and not acuminate lateral expansions. Ratio length of penis: length of tubular process of phallobase = 1.85 (fig. 29-30 h. o.). Phallobase proximally deeply indented (fig. 37 h. o.). Ratio total length of right paramere: distal process of dorsal branch (the one beyond the preapical tooth) = 4.0 (fig. 39-40 h. o.). Ratio length of mesotibiae: length of mesotarsi = 1.46 (male) and 1.53 (female), fig. 25-26 h. o. Length with pygidium 11.53 mm (male), 14.20 mm (females, average on five specimens). Indonesia (Sulawesi Utara: Dumoga-Bone National Park).....*dimorpha* n.sp.

13 (12) Moderately dimorphic species: lateral ridges in male are four on metatibia (of increasing length), three on metabasitarsomere (fig. 42 h. o.), three on metatibia and three, quite unequal (the longest is the first one) on metabasitarsomere in females (fig. 43 h. o.). 11th antennomere with four apical processes in male (fig. 53 h. o.) and three in female (fig. 54 h. o.). 8th introflected urosternum (fig. 55 h. o.) proximally concave, distally quite moderately emarginate; 9th one (fig. 51 h. o.) indented at tip and with marked acuminate lateral expansions. Ratio length of penis: length of tubular process of phallobase (fig. 49, 50 h. o.) = 2.43. Phallobase proximally flat (fig. 57 h. o.). Total length of right paramere: distal process of dorsal branch = 5.3 (fig. 59, 60 h. o.). Mesotibial length: mesotarsal length = 1.82 (male), 1.71 (female), fig. 45, 46 h. o. Length with pygidium 12.40 (male), 13.40 (females, average on three specimens). Indonesia (Sulawesi Utara: Dumoga-Bone National Park) .....*hogsbacki* n. sp.

14 (5) Length not exceeding 8 mm in females (males still unknown) including pygidium. Habitus, antennae, protarsi, maxillary palpi, mesotibiae and mesotarsi fig. 1-5, Horák, 1998: 31. India, Sumatra, Borneo, New Guinea. Position of this species remains doubtful if unavailability of males persists .....*glipodoides* (Blair, 1931: 204)

Remarks

The scanty phaenological data on *Glipostena* are summarized below:

Species, sex, collecting methods, if known	Places and months of collecting: North of equator	South of equator
congoana (male)	-	Congo (Flandria) IX (Horák, 1998)
congoana (females)	Sierra Leone (Njala) V (Horák l.c.)	Congo (Kasai) XII (Horák l.c.)
	Gabon (Sanzulu) IV (Horák l. c.)	Congo basin XI (Ermisch, 1952:86)
	Cameroon V (Ermisch l. c.)	Comores (Moheli) IX (Ermisch l.c.)
nemoralis (female, at light)	-	Angola (Luachimo for.) IX (Franciscolo, 1962: 118)
pelecotomoidea (female)	Taiwan (Taibovimbe) XI (Horák l. c.)	-
		-
medleri (males, at light)	Nigeria (Ile Ife) V (h. o.)	-
dimorpha (male, Malaise trap)	Sulawesi Utara IX (h. o.)	
dimorpha (females, Malaise trap)	Sulawesi Utara II, III, VI (h.o.)	-
hogsbacki (male, Malaise trap)	Sulawesi Utara IX (h.o.)	-
hogsbacki (females, Malaise trap)	Sulawesi Utara II, X, XII (h. o.)	-
glipodoides (female, ex *Mangifera indica*, Anacardiaceae)	India, (Bombay) VIII (Horák, 1998: 30)	-

Most of specimens seen by Horák l. c. have no indication of the month of capture.

There is an evident outphasing of phaenology of males north of equator (V, IX) versus females (II, III, IV, VIII, IX, XI, XII).The shortest gap between males and females is found in *hogsbacki* (male IX, one female X); quite surprising that one year run of Malaise traps at Dumoga-Bone N. P. yielded alltogether two males and eight females only, in two species, in contrast, e. g., with the 245 specimens (85 males, 160 females) of *Zeamordella caprai* Franciscolo, 1992: 565. Why *Glipostena* is so rare both north and south of equator and so strongly spanandrious is unexplicable. Sulawesi catches at Malaise traps only suggest the insect might have exclusively nocturnal flight activity (perhaps, as noted by Horák, l. c.: 29, explainable by the very large and coarsely faceted eyes), definitely outphased from one sex to the other.

Some information about the vegetational patterns of the places of capture of the three species herewith described might be of some interest.

Ile Ife (Nigeria) mixed forest is (or was?) mainly dominated by *Lophira* (Ochnaceae), *Pausynistalia* (Rubiaceae), *Strombosia* (Olacaceae), *Scottellia* (Flacourtiaceae), *Diospyros* (Ebenaceae) and *Erythrophleum* (Mimosaceae) in story A and B and by *Rinorea* (Violaceae), *Casearia* (Flacourtiaceae), *Picralima* (Apocinaceae) and minor shrubs in stories C and D (Richards, 1964: 29-30), replaced, in abandoned farmlands, by secondary forest with *Chlorophora excelsa* (Moraceae), *Terminalia superba* (Combretaceae) and *Triplochiton sclero-xylon* (Sterculiaceae) as dominants (ibid.: 385).

At Sulawesi Utara Dumoga-Bone (O'Donovan, 1990: 129-143) the lowland forest (200 m a. s.) is quite dense due to the abundance of a rotan (*Daemonerops*) with *Macaranga* (Euphorbiaceae) and *Freycinetia* (Pandanaceae) in the understorey; *Ficus* (Moraceae), the palm *Livistona rotundifolia*, *Pometia pinnata* (Sapindaceae), *Celtis* (Ulmaceae), *Garcinia, Calophyllum* (Guttiferae), *Myristica* (Myristicaceae) are dominant; gaps in forest are colonized by light demanding trees such as *Trema* (Ulmaceae) and *Pometia*. The layout is three storey; buttressing is the rule; average species density is 100 per hectare.

Hog's Back (490 m a. s.) is within transitional forest, whose appearance changes considerably: buttressing much reduced, two tiered storeys, a more open canopy, *Daemonerops* scarce, *Livistona* more abundant, tending to become a canopy tree; trees are not higher than 30 m; a low-growing (5 m) *Pandanus* appears at this altitude with quite frequent multistemming. Unexplicably males of both *G. dimorpha* and *hogsbacki* came from Hog's Back Camp only, together with one female of *hogsbacki*, whereas all other females came from lowland forest, though in different months of 1985, between 200 and 300-400 m a. s.

Should males safely attributable to *nemoralis* and *glipodoides* become available and properly described, it might result that:

a) *nemoralis* will be confirmed as a good and quite distinct species due to the peculiar pronotal sculpture pattern;

b) *dimorpha*, with females so different from the unique male, might be splitted into two separate species (one of which might result to be the male of *glipodoides)*, should males - matching well with female ridge arrangement and shape - be collected "ex societate foeminae".

It is rather surprising that at least one nigerian and two sulawesian species have genital sclerites so similar, whose structure is at all unusual in Mordellistenini.

AKNOWLEDGEMENTS

Thanks are due to Dr R. Poggi and Mr J. Horák (referees for present paper), to Dr G. Barberis for her checking of botanical information and Dr V. Raineri for his bibliographical support.

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Mem. Soc. entomol. ital., 77: 259-309 *31 marzo 1999*

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Catalogo dei Tricotteri della Sicilia

Riassunto - La tricotterofauna della Sicilia è stata studiata per molti anni (dal 1959 al 1997) in 455 stazioni facenti parte di 60 bacini idrografici. Le stazioni di raccolta, comprese ad altitudini tra 0 e 1800 m s.l.m., ricadono in 122 dei 310 quadrati U.T.M. in cui è suddivisa l'isola. In totale sono stati effettuati 1121 campionamenti. Il numero più alto di stazioni di campionamento è ubicato nel settore nord orientale dell'isola e poco indagato risulta invece il settore centro meridionale.
Complessivamente i taxa reperiti, ascrivibili a 17 famiglie ed a 45 generi, sono 92 (79 specie e 7 sottospecie identificate e 6 determinati a livello di genere). Di questi taxa, 16 non sono segnalati per la Sicilia in precedenti liste faunistiche: *Glossosoma sp., Catagapetus nigrans* McLachlan 1884, *Hydroptila brissaga* Malicky 1996, *H. sparsa* Curtis, 1834, *Wormaldia pulla marlieri* Moretti 1981, *Hydropsyche dinarica* Marinkovic 1979, *H. morettii* De Pietro 1996, *H. spiritoi* Moretti 1991, *Plectrocnemia alicatai* De Pietro 1998, *Lype reducta* (Hagen 1868), *Limnephilus auricola* Curtis 1834, *L. ignavus* McLachlan 1865, *Glyphotaelius pellucidus* (Retzius 1783), *Halesus sp., Allogamus sp., Silo nigricornis* (Pictet 1834).
Le famiglie più rappresentate sono Limnephilidae, Hydroptilidae e Hydropsychidae, rispettivamente con 28, 17 ed 8 specie mentre la famiglia Rhyacophilidae, con soltanto due specie, è scarsamente rappresentata. Una di queste due specie, *Rhyacophila rougemonti* McLachlan 1880, è risultata la specie più diffusa nell'isola (44% delle stazioni di raccolta e 56% dei quadrati U.T.M.).
I monti Nebrodi rappresentano l'area geografica in cui è stato rinvenuto il numero più alto di specie.
Il bilancio zoogeografico dei Tricotteri di Sicilia lascia riconoscere una preponderanza di elementi con distribuzione a gravitazione settentrionale (50%). Il 14% delle specie ha una distribuzione occidentale. Inoltre, 17 taxa possono essere considerati endemici a distribuzione appennino-sicula e 7 taxa risultano per ora endemici della Sicilia: *Hydropsyche gereckei* Cianficconi & Moretti 1990, *Plectrocnemia geniculata factiosa* Moretti 1991, *Polycentropus francavillensis* Malicky 1981, *Tinodes locuples* McLachlan 1878, *Chaetopteryx trinacriae* Botosaneanu, Cianficconi & Moretti 1986, *Stenophylax bischofi* Malicky 1992, *Ernodes nigroauratus siculus* Malicky 1981.

Abstract - *Check list of Sicilian Trichoptera.*
Research on the trichopteran fauna of Sicily has been carried out over many years (1959-1997) at 455 sites in 60 hydrographic basins. The sites, located at different altitudes (0-1800 m a.s.l.), cover 122 of the 310 quadrates of the U.T.M. grid map of Sicily. A total of 1121 samplings have been performed. Most of the sampling sites are in north eastern Sicily, while the south central sector has been less studied to date.
On the whole, 92 taxa (79 species, 7 subspecies, 6 identified as genera), from 17 families and 45 genera, have been identified. This report adds 16 taxa to the previous check lists of Sicilian trichopteran fauna: *Glossosoma sp., Catagapetus nigrans* McLachlan 1884, *Hydroptila brissaga* Malicky 1996, *H. sparsa* Curtis, 1834, *Wormaldia pulla marlieri* Moretti 1981, *Hydropsyche dinarica* Marinkovic 1979, *H. morettii* De Pietro 1996, *H. spiritoi* Moretti 1991, *Plectrocnemia alicatai* De Pietro 1998, *Lype reducta* (Hagen 1868), *Limnephilus auricola* Curtis 1834, *L. ignavus* McLachlan 1865, *Glyphotaelius pellucidus* (Retzius 1783), *Halesus sp., Allogamus sp., Silo nigricornis* (Pictet 1834).
Most species belong to the families Limnephilidae (28 species), Hydroptilidae (17) and Hydropsychidae (8), while Rhyacophilidae has a low number of species (2). *Rhyacophila rouge-*

monti McLachlan 1880 is the most widespread species in the running water of Sicily (44% of the sampling sites and 56% of the quadrates U.T.M.).
The highest number of species was found in the Nebrodi mountains.
The zoogeographical balance shows a predominance of species with northern distribution (50%). 14% of the species have western distribution. Seventeen species have Apennine-Sicilian distribution and seven species are endemic to Sicily, namely *Hydropsyche gereckei* Cianficconi & Moretti 1990, *Plectrocnemia geniculata factiosa* Moretti 1991, *Polycentropus francavillensis* Malicky 1981, *Tinodes locuples* McLachlan 1878, *Chaetopteryx trinacriae* Botosaneanu, Cianficconi & Moretti 1986, *Stenophylax bischofi* Malicky 1992, *Ernodes nigroauratus siculus* Malicky 1981.

Key words: Trichoptera, Sicily, zoogeography, new faunistic data.

INTRODUZIONE

Le indagini sui Tricotteri della Sicilia sono iniziate nella seconda metà dell'800 quando McLachlan (1874-80) descrisse due specie nuove (*Tinodes locuples*, *Sericostoma siculum*) su esemplari raccolti nei dintorni di Messina. A questa prima informazione seguiva un lungo periodo senza attività scientifiche in questo campo. Solo a partire dal 1959 vari ricercatori (Conci, Consiglio, Filomeno, La Greca, Osella, Ravizza, Riggio (1978), Ruffo, Sichel) cominciavano a fornire nuove informazioni con campionamenti sporadici, primaverili ed estivi, in diversi corpi idrici. Il materiale raccolto, insieme a quello ottenuto in campagne condotte nella Sicilia orientale da Moretti, Cianficconi, Gianotti e Viganò nel 1961 e nel 1967, nella Sicilia occidentale da Roncone (tesi di laurea 1969-1970), lungo il periplo dell'isola da Moretti, Cianficconi, Marini e Pirisinu nel 1978, ha formato la base per i primi elenchi sistematici (Moretti & Cianficconi, 1978, 1981).

Successivamente le conoscenze sulla tricotterofauna siciliana sono state incrementate da una ricerca sulla fauna autunnale condotta nel 1985 nel settore orientale dell'isola (Botosaneanu, Cianficconi & Moretti, 1986), da raccolte di Gerecke in tutta l'isola negli anni 1985-1989, dedicate soprattutto agli stadi acquatici, e da indagini effettuate da Malicky (1980, 1981, 1985). Sulla base di questi nuovi dati, i taxa conosciuti per l'isola sono aumentati a 70 (Cianficconi & Moretti, 1990, 1991).

Recentemente le conoscenze sono aumentate grazie ad ulteriori indagini di Malicky (1992, 1996) ed a numerose raccolte effettuate da De Pietro, soprattutto nel versante orientale, dal 1992 in poi. Nella recente "Check list delle specie della fauna italiana" (Moretti & Cianficconi, 1995) la lista riguardante la Sicilia comprende 76 taxa.

In questa nota si è ritenuto opportuno riportare tutti i reperti ancora non pubblicati ed i dati di bibliografia, in modo da raccogliere in un unico catalogo quanto si conosce, sino al 1997, dei Tricotteri siciliani e fornire inoltre informazioni sulla distribuzione delle specie in Sicilia e sulla loro ecologia.

MATERIALI E METODI

STAZIONI E METODI DI CAMPIONAMENTO.

Le stazioni di raccolta sono 455, distribuite in 60 bacini idrografici. Non sono state considerate le stazioni in cui non è stata rinvenuta almeno una specie. Le stazioni sono localizzate a quote comprese tra 0 e 1800 m s.l.m., la maggior parte delle quali (circa il 70%) si trova al di sotto degli 800 m. Per gran parte delle stazioni sono stati effettuati più

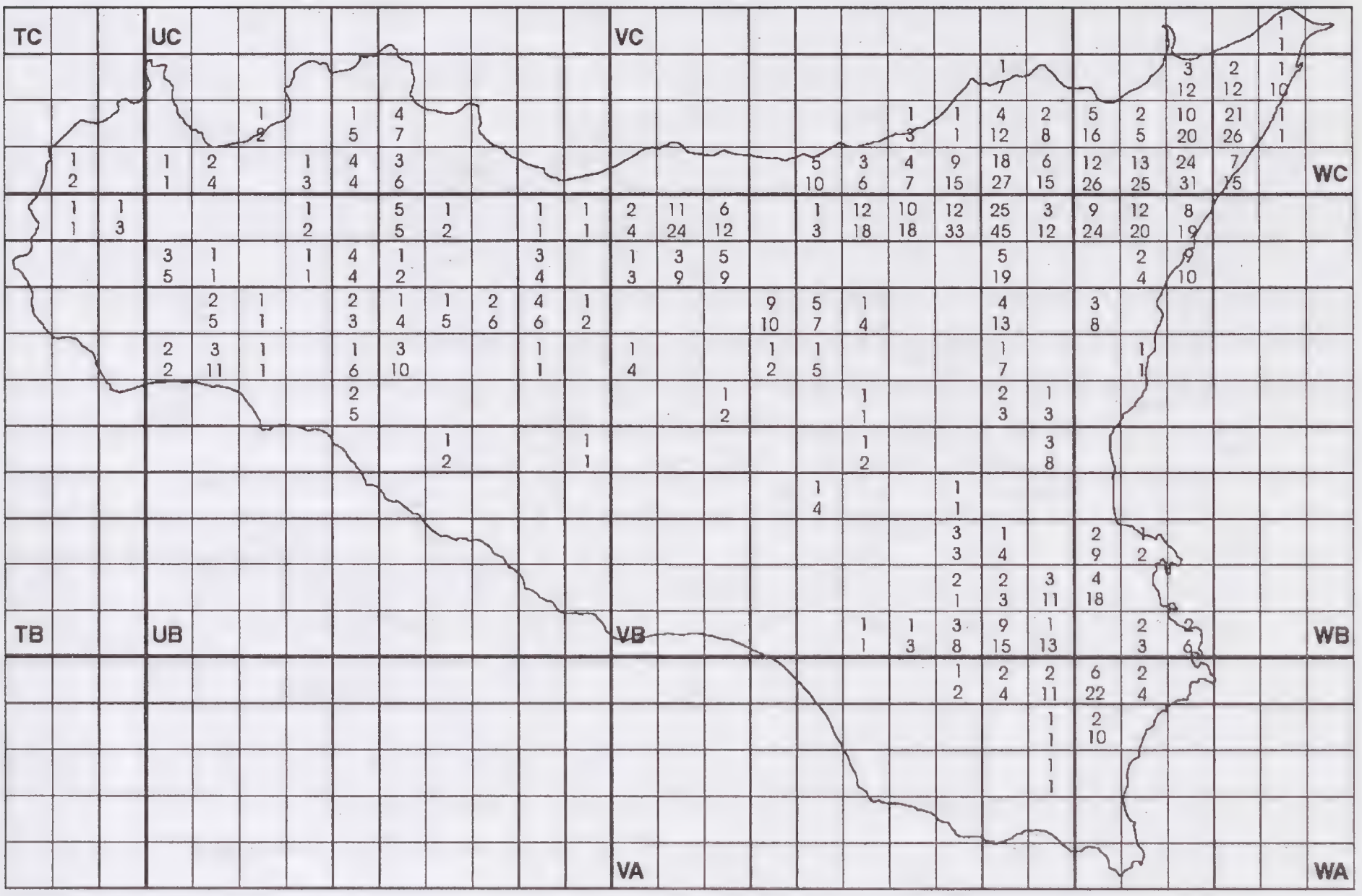

Fig. 1. Suddivisione della Sicilia secondo il reticolo U.T.M. Per ciascun quadrato di 10 km di lato sono indicati il numero delle stazioni di campionamento in cui sono stati rinvenuti Tricotteri (in alto) ed il numero di specie riscontrate (in basso).

campionamenti in date diverse; pertanto il numero di campionamenti è superiore a quello delle stazioni di raccolta ed ammonta a 1121. In fig. 1, per ogni quadrato di 100 km^2 del reticolato U.T.M., sono indicati il numero di stazioni di campionamento (in alto) ed il numero di taxa riscontrati (in basso).

Sono state indagate diverse tipologie ambientali: igropetrici, sorgenti, ruscelli, torrenti, fiumi, stagni, pantani, abbeveratoi, acque salmastre, ambienti ipogei. Tuttavia, gli ambienti lotici rappresentano la quasi totalità delle stazioni.

I Tricotteri adulti sono stati raccolti a vista, con retini, con lampade e trappole luminose; gli stadi preimaginali con retini, nei diversi microhabitat dei sedimenti, oppure, per la fauna interstiziale, scavando pozzi "Karaman-Chappuis" nei banchi di sabbia e ghiaia accanto al corso d'acqua e filtrando l'acqua accumulata in essi (Gerecke, 1991). Moretti e De Pietro hanno allevato in laboratorio numerose larve e pupe sino all'emergenza delle imagini.

Il materiale raccolto da De Pietro e Grasso è stato determinato da De Pietro, quello raccolto da Malicky dallo stesso raccoglitore, il restante materiale da Moretti.

Gli esemplari esaminati sono conservati nella collezione Moretti presso l'Istituto di Zoologia dell'Università di Perugia, nella collezione Malicky presso la Stazione biologica di Lunz am See (Austria) e nella collezione De Pietro presso il Dipartimento di Biologia Animale dell'Università di Catania.

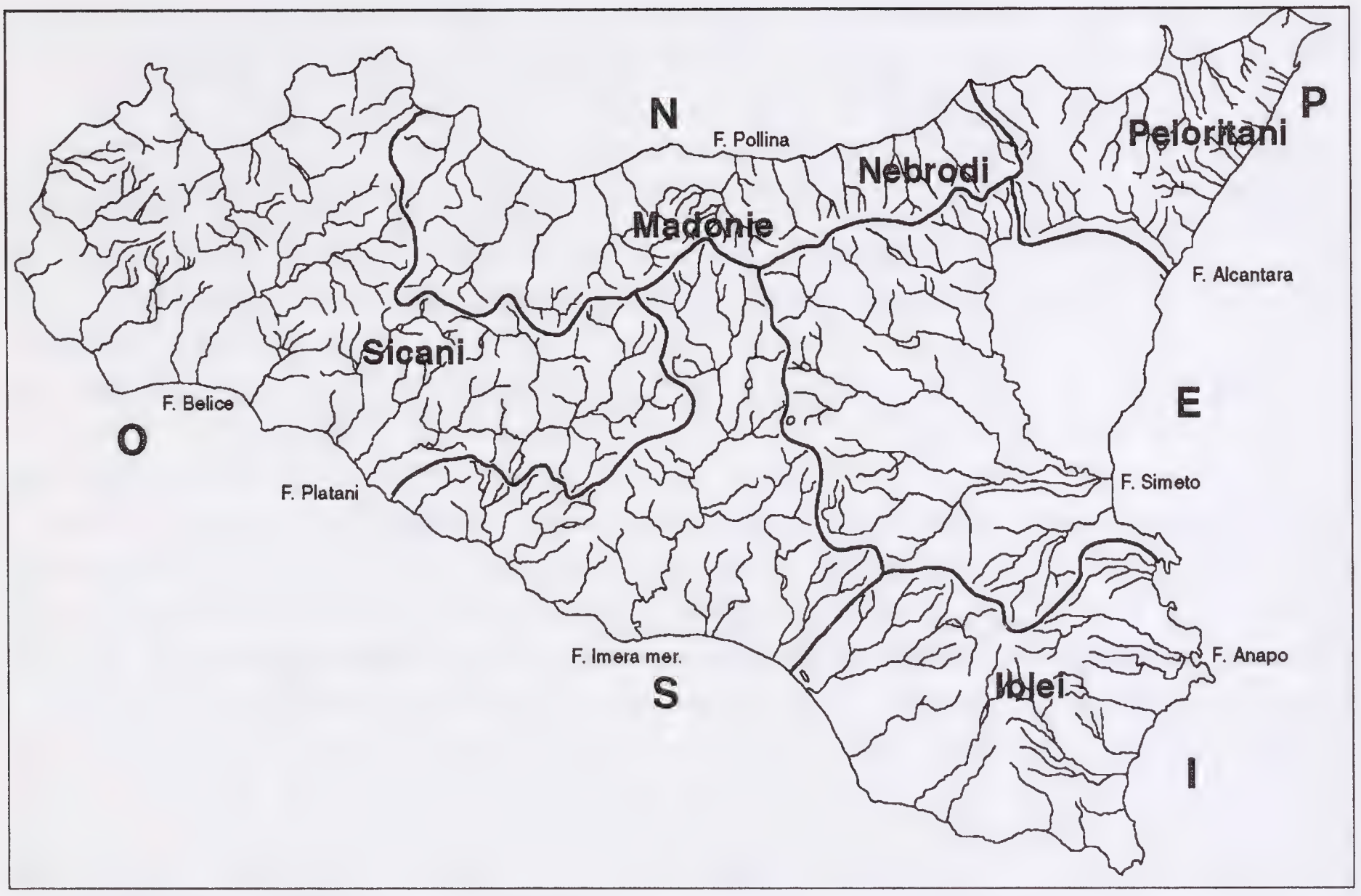

Fig. 2. Reticolo idrografico e suddivisione della Sicilia nelle aree primarie secondo Audisio et al., 1988. Sono indicati i principali complessi montuosi e i maggiori corsi d'acqua.

Le stazioni sono state raggruppate nelle aree primarie proposte da Audisio et al. (1988), quindi per bacini idrografici. La fig. 2 mostra il reticolo idrografico della Sicilia e le sei aree primarie. Queste ultime sono identificate dalle seguenti sigle:

– E (Est), comprende l'Etna, l'intero bacino del fiume Simeto, il versante meridionale dei monti Nebrodi ed il versante settentrionale dei monti Iblei;
– I (Iblei), comprende la restante parte dei monti Iblei;
– N (Nord), comprende i versanti settentrionali dei complessi montuosi del palermitano, delle Madonie e dei Nebrodi;
– O (Ovest), comprende il trapanese, il versante occidentale dei monti del palermitano, i monti Sicani;
– P (Peloritani), comprende i monti Peloritani, il bacino del fiume Alcantara ed alcuni bacini del versante settentrionale dei monti Nebrodi;
– S (Sud), comprende alcuni bacini della porzione centro meridionale dell'isola; la porzione montana del bacino del fiume Imera meridionale fa parte del complesso montuoso delle Madonie.

Ai fini dell'analisi della distribuzione delle specie, oltre al sistema delle aree primarie, è stata utilizzata una diversa suddivisione dell'isola basata sulle aree geografiche. In particolare sono state individuate sette aree: Est, Peloritani, Nebrodi, Madonie, Iblei, Ovest e Sud. L'area Est coincide con l'area primaria E alla quale sono stati tolti i territori facenti parte di Nebrodi ed Iblei; Iblei, Nebrodi, Madonie e Peloritani coincidono con i rispettivi complessi montuosi, l'area Ovest coincide con l'area primaria O alla quale

sono stati aggiunti i bacini del Palermitano inclusi nell'area N, l'area Sud coincide con l'area primaria S alla quale è stata tolta però la porzione facente parte delle Madonie.

ELENCO DELLE STAZIONI DI CAMPIONAMENTO.

Per ciascuna delle stazioni di campionamento è indicato il codice, la denominazione, il centro abitato più vicino, la provincia, la quota altimetrica, le coordinate U.T.M. e, tra parentesi, il numero di campionamenti effettuati ed il numero di specie riscontrate.

Il codice di ciascuna stazione è composto da cinque caratteri: il primo è la sigla dell'area primaria, il secondo è una sigla del bacino (o sottobacino) idrografico e le restanti tre cifre sono un numero progressivo delle stazioni nell'area primaria considerata.

AREA E

Bacino del Fiume Simeto

Ea001 Sorgente C.da Uriosecco, Capizzi (ME) 1400 m VB537930 (1-1)
Ea002 F. di Troina, a valle di P.zo Manca Badia, Capizzi (ME) 1200 m VB5592 (1-5)
Ea003 Affluente sn T. S. Elia, pressi Mulino Leanza, Troina (ME) 1000 m VB6490 (1-2)
Ea004 Affluente ds T. S. Elia, Trinche, Troina (ME) 990 m VB6490 (1-1)
Ea005 T. S. Elia, a monte captazione, Troina (ME) 1025 m VB6491 (1-2)
Ea006 Sorgente pressi T. S. Elia, Troina (ME) 1030 m VB6491 (1-7)
Ea007 V. Finocchio, a monte captazione, San Teodoro (ME) 925 m VB6990 (1-2)
Ea008 T. Torti, ponte S.S. 289, Cesarò (ME) 1350 m VB6994 (4-9)
Ea009 F. Cutò, Passo Compaga, Cesarò (ME) 800 m VB758924 (11-10)
Ea010 L. Biviere di Cesarò, Cesarò (ME) 1274 m VC7500 (2-3)
Ea011 T. Martello, a monte traversa, Maniace (CT) 1000 m VB7896 (1-11)
Ea012 T. Martello, a monte conf. V. Catania, Maniace (CT) 940 m VB8095 (1-8)
Ea013 T. Martello, a valle conf. V. Catania, Maniace (CT) 930 m VB8095 (1-9)
Ea014 T. Martello, a monte di Petrosino, Maniace (CT) 850 m VB8194 (1-6)
Ea015 T. Martello, C.da S. Andrea, Maniace (ME) 680 m VB8290 (2-4)
Ea016 V. Sperone, C.da Grappidà, Maniace (CT) 1400 m VB8098 (1-4)
Ea017 Affluente V. Catania, C.da Grappidà, Maniace (CT) 1280 m VB8097 (1-2)
Ea018 V. Catania, C.da Grappidà, Maniace (CT) 935 m VB8095 (1-8)
Ea019 Sorgente del Medico, Serra del Re, Maniace (CT) 1550 m VB818984 (2-4)
Ea020 Pantani di Piano Pomaro, Piano Pomaro, Maniace (CT) 1350 m VB8197 (1-1)
Ea021 Sorgente Portella Balestra, Serra del Re, Maniace (ME) 1500 m VB789996 (1-4)
Ea022 Sorgente Portella Balestra, Serra del Re, Maniace (ME) 1500 m VB789997 (1-6)
Ea023 Sorgente Serra del Re, Piano del Re, Maniace (CT) 1650 m VB801994 (2-1)
Ea024 Sorgente Serra del Re, versante Nord, Maniace (ME) 1650 m VC805000 (4-6)
Ea025 Sorgente Pizzo di Mangalaviti, Serra del Re, Maniace (CT) 1540 m VB790990 (1-1)
Ea026 Ruscello C.da Mangalaviti, Serra del Re, Maniace (ME) 1430 m VC800008 (2-3)
Ea027 Sorgente versante Nord Est Serra del Re, Maniace (ME) 1660 m VC807002 (3-5)
Ea028 Sorgente Favotorto, Serra del Re, Maniace (ME) 1600 m VC809009 (1-1)
Ea029 Sorgente C.da Pomarazzo, Foresta Vecchia, Maniace (ME) 1620 m VB818996 (1-4)
Ea030 T. Saracena, Foresta Vecchia, Maniace (CT) 1500 m VC8100 (2-9)
Ea031 T. Saracena, Foresta Vecchia, Maniace (CT) 1420 m VC8200 (10-12)
Ea032 T. Saracena, Foresta Vecchia, Maniace (CT) 1380 m VC8200 (11-11)
Ea033 T. Saracena, C.da Scagliola, a monte traversa, Maniace (CT) 1360 m VC8300 (11-16)
Ea034 T. Saracena, C.da Scagliola, a valle traversa, Maniace (CT) 1350 m VB8399 (12-27)
Ea035 T. Saracena, C.da Cartolari, Maniace (CT) 1285 m VB8499 (6-8)
Ea036 T. Saracena, C.da Trearie, Maniace (CT) 1230 m VB8499 (2-6)
Ea037 T. Saracena, Chiusitta, Maniace (CT) 1180 m VB8598 (24-30)
Ea038 T. Saracena, Balze Sottane, Maniace (CT) 750 m VB8691 (6-6)
Ea039 Affluente T. Saracena, Foresta Vecchia, Maniace (CT) 1470 m VC8200 (1-2)

Ea040 Affluente T. Saracena, Foresta Vecchia, Maniace (CT) 1390 m VC8200 (6-10)
Ea041 Affluente T. Saracena, a monte Margio Soprano, Maniace (ME) 1410 m VC8401 (1-1)
Ea042 Affluente T. Saracena, a valle Margio Soprano, Maniace (ME) 1350 m VC8400 (1-6)
Ea043 Affluente T. Saracena, C.da Cartolari, Maniace (ME) 1285 m VB8499 (8-13)
Ea044 V. Scagliola, Foresta Vecchia, Maniace (CT) 1360 m VB8399 (10-11)
Ea045 Sorgente pressi Segheria, Maniace (CT) 1120 m VB858938 (1-1)
Ea046 Sorgente pressi Segheria, Maniace (CT) 1070 m VB862939 (1-1)
Ea047 V. della Finaita, Cartolari Trearie, Maniace (CT) 1200 m VB8598 (2-1)
Ea048 Torrente pressi Case Chiusitta, Maniace (CT) 1290 m VB8498 (3-9)
Ea049 Pressi Case Segheria, Maniace (CT) 1170 m VB8594 (2-8)
Ea050 F. Simeto, Ponte della Cantera, Bronte (CT) 570 m VB826843 (8-13)
Ea051 Sorgente pressi Abbazia di Maniace, Maniace (CT) 690 m VB843902 (1-1)
Ea052 F. Serravalle, Bolo, Bronte (ME) 570 m VB8184 (3-4)
Eb053 Sorgente T. Mandre, C.da Ficilino, Villadoro (EN) 887 m VB358741 (1-1)
Eb054 T. Mandre, a monte Masseria Ficilino, Villadoro (EN) 800 m VB362738 (4-4)
Eb055 T. Mandre, C.da Mandre, Villadoro (EN) 690 m VB3773 (1-3)
Eb056 Affluente T. Mandre, Mass. S. Silvestro, Villadoro (EN) 680 m VB3874 (1-1)
Eb057 T. Mandre, a monte conf. T. Feliciosa, Villadoro (EN) 620 m VB3973 (3-3)
Eb058 T. Mandre, Poggio Pioppo, Villadoro (EN) 600 m VB4073 (3-3)
Eb059 T. Mandre, a monte conf. F.tto di Sperlinga, Nicosia (EN) 550 m VB4377 (4-4)
Eb060 Fiumetto di Sperlinga, a monte conf. T. Fiumetto, Nicosia (EN) 560 m VB4477 (1-5)
Eb061 T. Fiumetto, a monte conf. F.tto di Sperlinga, Nicosia (EN) 550 m VB4477 (1-1)
Eb062 V. Intronata, Villadoro (EN) 650 m VB3975 (2-2)
Eb063 Sorgente pressi Mass. Intronata, M. Zimmara, Sperlinga (EN) 800 m VB398764 (1-3)
Eb064 F. Salso, ponte S.S. 117, Nicosia (EN) 550 m VB4477 (4-3)
Eb065 Fontana ponte S. Pietro, M. Altesina, Villadoro (EN) 890 m VB3871 (1-2)
Eb066 M. Altesina, Villadoro (EN) VB37 (1-1)
Eb067 F. di Cerami, a monte conf. F. Salso, Nicosia (EN) 410 m VB5573 (3-4)
Ec068 F. Dittaino, S.S. 121, a valle di Leonforte (EN) 300 m VB4362 (3-5)
Ec069 F. Dittaino, Stazione di Dittaino, Assoro (EN) 240 m VB5258 (1-1)
Ec070 V. Quattro Teste, C. Torino, Piazza Armerina (EN) 300 m VB4833 (1-4)
Ec071 F. Gornalunga, Aidone (EN) 360 m VB5144 (1-2)
Ec072 F. di Caltagirone, Mineo (CT) 110 m VB7028 (1-1)
Ec073 F. di Caltagirone, Ponte dei Monaci, Ramacca (CT) 60 m VB7435 (1-1)
Ec074 F. Simeto, Ponte Bolo, Bronte (CT) 620 m VB8287 (7-5)
Ec075 F. Simeto, Ponte Passopaglia, Bronte (CT) 460 m VB8280 (12-8)
Ec076 F. Simeto, Ponte dei Saraceni, Adrano (CT) 350 m VB8272 (6-6)
Ec077 F. Simeto, C.da S. Domenica, Adrano (CT) 240 m VB8270 (4-5)
Ec078 F. Simeto, Pietralunga, Paternò (CT) 90 m VB8660 (8-7)
Ec079 F. Simeto, Passo d'Ipsi, Paternò (CT) 80 m VB8758 (1-1)
Ec080 F. Simeto, Ponte La Barca, Paternò (CT) 60 m VB8954 (1-3)
Ec081 F. Simeto, ponte autostrada, Motta S. Anastasia (CT) 25 m VB9046 (6-2)
Ec082 F. Simeto, S.S. 192, Motta S. Anastasia (CT) 23 m VB9245 (1-6)
Ec083 F. Simeto, pressi S.S. 417, Motta S. Anastasia (CT) 15 m VB9444 (4-5)
Ed084 Sorgente S. Domenica, C.da S. Domenica, Adrano (CT) 260 m VB825706 (3-6)
Ed085 Fonte S. Domenica, Adrano (CT) 270 m VB8270 (3-6)
Ed086 V. del Caffaro, Paternò (CT) 170 m VB9254 (1-3)
Ed087 Acquitrini temporanei, sciare di Santa Venera, Maletto (CT) 850 m VB8689 (3-6)
Ee088 T. Catalfaro, Militello in Val di Catania (CT) 500 m VB7621 (1-2)
Ee089 T. Catalfaro, Palagonia (CT) 210 m VB7728 (1-2)

Bacino del Fiume San Leonardo
Ef090 T. Sughereta, C.da Piano della Corte, Buccheri (SR) 750 m VB8508 (1-2)
Ef091 T. Passanetello, pressi Case San Leo, Francofonte (SR) 300 m VB8520 (2-4)
Ef092 T. Risicone, pressi Case Mastrocciardo, Francofonte (SR) 250 m VB8717 (1-2)

Ef093 T. Sapillone, pressi Case Vallelupe, Pedagaggi (SR) 400 m VB9213 (3-6)
Ef094 T. Gelso, pressi sorgente Paradiso, Pedagaggi (SR) 300 m VB9617 (3-6)
Ef095 Sorgente C.da Ceusa, M. S. Venere, Pedagaggi (SR) 520 m VB962147 (2-5)

Bacini del versante orientale del Monte Etna
Eg096 Sorgente Mulino, Santa Maria La Scala (CT) 3 m WB1562 (1-1)
Eg097 Etna, Citelli, Milo (CT) 1730 m WB07 (1-5)
Eg098 Etna, SW Linguaglossa (CT) 1200 m WB18 (1-1)
Eg099 Ruscello Valle San Giacomo, Zafferana Etnea (CT) 900 m WB078733 (2-3)
Eg100 Etna, Valle del Bove, Zafferana Etnea (CT) WB07 (1-1)

Area I

Ia001 Buccheri (SR) 700 m VB80 (3-6)
Ib002 Grotta della Signora, Melilli (SR) 190 m WB0818 (1-1)

Bacino del Fiume Marcellino
Ic003 F.ra Grande, C.da Carrubba, Pedagaggi (SR) 320 m WB0117 (4-9)
Ic004 F.ra Grande, Lufio, Villasmundo (SR) 100 m WB0920 (4-6)
Ic005 Ruscello pressi T. Belluzza, Villasmundo (SR) 100 m WB0919 (11-8)
Id006 F. Mulinello, C.da Gebbiazza, Villasmundo (SR) 120 m WB0821 (10-8)
Id007 F. Mulinello, Ponte SS 114, Augusta (SR) 50 m WB1323 (1-2)

Bacino del Fiume Anapo
Ie008 F. Anapo, S.S. 124, Palazzolo Acreide (SR) 480 m VB898027 (4-9)
Ie009 F. Anapo, Scala Vecchia, Cassaro (SR) 370 m VB9606 (13-13)
Ie010 Cava Grande, Pantalica, Sortino (SR) 200 m WB0210 (4-11)
Ie011 F. Anapo, Ponte Diddino, Floridia (SR) 70 m WB1306 (1-3)
Ie012 F. Anapo, Floridia (SR) 40 m WB1605 (1-1)
Ie013 F. Anapo, foce, Siracusa (SR) 0 m WB2301 (2-2)
Ie014 F. Ciane, Siracusa (SR) 2 m WB2109 (4-6)
Ie015 Grotta Monello, Floridia (SR) 100 m WA1497 (1-1)

Bacino del Fiume Cassibile
If016 Cava Mazzone, C.da Celso, Palazzolo Acreide (SR) 520 m VA9794 (2-9)
If017 Cava San Marco, C.da San Marco, Palazzolo Acreide (SR) 370 m VA9894 (9-7)
If018 Cava Cinque Porte, C.da Buffa, Canicattini Bagni (SR) 440 m WA0095 (15-14)
If019 Cava Manghisi, C.da Buffa, Canicattini Bagni (SR) 440 m WA0095 (5-3)
If020 T. S. Chiara, ponte S.S. 287, Canicattini Bagni (SR) 300 m WA0488 (4-3)
If021 F. Manghisi, ponte S.S. 287, Canicattini Bagni (SR) 400 m WA0293 (18-17)
If022 F. Cassibile, Cava Grande, Avola Antica (SR) 225 m WA085919 (2-3)
If023 F. Cassibile, pressi centrale Enel, Avola (SR) 50 m WA1390 (1-3)
If024 Grotta Caprara, Canicattini Bagni (SR) WA09 (1-1)

Bacino del Fiume Asinaro
Ig025 Cava Piraro, Convento della Scala, Noto (SR) 370 m WA0290 (5-5)
Ig026 Noto Antica (SR) 200 m WA08 (3-8)
Ih027 Santo Pietro (CT) 600 m VB50 (1-1)

Bacino del Fiume Tellaro
Ii028 T. Tellesimo, C.da Gisira, Noto (RG) 190 m VA922861 (1-1)
Ii029 T. Tellaro, Palazzolo Acreide (SR) 600 m VA855995 (2-3)
Ii030 Cava Candelaro, Rosolini (SR) 40 m VA995774 (1-1)

Bacino del Fiume Dirillo
Ij031 V. Donninga, M. Lauro, Monterosso Almo (RG) 750 m VB843099 (2-2)

Ij032 Sorgente pressi Case Catalano, M. Lauro, Monterosso Almo (RG) 740 m VB844104 (1-1)
Ij033 F. Amerillo, a valle di Monterosso Almo (RG) 440 m VB7706 (1-2)
Ij034 F. Amerillo, a monte lago Dirillo, Vizzini (RG) 330 m VB7508 (1-8)
Ij035 Affluente del F. Vizzini, Vizzini (CT) 420 m VB7712 (1-1)
Ij036 F. Vizzini, Vizzini (CT) 380 m VB7811 (1-1)
Ij037 F. Vizzini, a monte lago Dirillo, Vizzini (CT) 320 m VB7508 (1-3)
Ij038 F. Dirillo, Acate (RG) 280 m VB6101 (1-3)

Bacino del Fiume Irminio
Ik039 Abbeveratoio pressi F. Irminio, M. Lauro, Monterosso Almo (RG) 839 m VB835061 (1-1)
Ik040 Sorgente F. Irminio, M. Lauro, Monterosso Almo (RG) 790 m VB830055 (2-3)
Ik041 Ruscello sorgivo F. Irminio, M. Lauro, Monterosso Almo (RG) 770 m VB832056 (2-2)
Ik042 Sorgente F. Irminio, Giarratana (RG) 700 m VB8305 (3-3)
Ik043 F. Irminio, C.da Pianazzo, Giarratana (RG) 550 m VB8201 (3-3)
Ik044 F. Irminio, a monte di Ragusa (RG) 320 m VA7990 (1-2)
Ik045 Grotta Mastro Carmine, C.da Donna Scala, Giarratana (RG) 600 m VA8099 (1-1)

AREA N

Bacino del Fiume Eleuterio
Na001 Ruscello Pianetto, P.na degli Albanesi (PA) 590 m UC553068 (2-1)
Na002 V. Rocca d'Elice, pressi lago Scanzano, Ficuzza (PA) 560 m UB5796 (1-3)

Bacino del Fiume San Leonardo
Nb003 Sorgente Rocca Busambra, Ficuzza (PA) 1200 m UB595905 (1-2)
Nb004 Sorgente versante Sud Rocca Busambra, Ficuzza (PA) 970 m UB588902 (1-1)
Nb005 V. d'Agnese, pressi p.zo Campana, Ficuzza (PA) 620 m UB6193 (1-1)

Bacino del Fiume Torto
Nc006 F. Torto, Valledolmo (PA) 497 m UB9074 (1-3)
Nc007 F. Torto, Roccapalumba (PA) 350 m UB8384 (1-1)
Nc008 F. S. Filippo, Roccapalumba (PA) 350 m UB8283 (1-2)
Nc009 F. Torto, Roccapalumba (PA) 270 m UB8385 (2-2)
Nc010 F. Torto, pressi stazione di Montemaggiore Belsito (PA) 150 m UB8591 (1-1)
Nc011 F. Torto, Stazione Sciara (PA) 75 m UB9295 (1-1)

Bacino del Fiume Imera settentrionale
Nd012 T. Fichera, Scillato (PA) 240 m VB0489 (1-4)
Nd013 Sorgente C.zo Vituro, Monte dei Cervi, Scillato (PA) 1500 m VB088912 (1-2)
Nd014 Ruscello sorgivo, Grotticella, P. di Noce, Polizzi Generosa (PA) 1050 m VB122903 (1-2)
Nd015 Ruscello sorgivo, Orto della Menta, Polizzi Generosa (PA) 1250 m VB127903 (1-1)

Bacino del Fiume Pollina
Ne016 Sorgente Castellaro, Monte dei Cervi, Scillato (PA) 1420 m VB079928 (2-2)
Ne017 T. Isnello, Isnello (PA) 600 m VB120994 (4-7)
Ne018 V. Madonie, Portella Colla, Polizzi Generosa (PA) 1300 m VB127929 (2-5)
Ne019 Affluente V. Madonie, Piano Battaglia, Polizzi Generosa (PA) 1600 m VB1392 (1-1)
Ne020 V. Madonie, Piano Zucchi, Isnello (PA) 1100 m VB1294 (1-2)
Ne021 Affluente V. Faguara, Polizzi Generosa (PA) 1330 m VB1691 (1-6)
Ne022 Piano Battaglia, Polizzi Generosa (PA) VB19 (2-6)
Ne023 Sorgente Piano Iola, Polizzi Generosa (PA) 1610 m VB151895 (1-1)
Ne024 Ruscello pendici M. S. Salvatore, Polizzi Generosa (PA) 1500 m VB1689 (2-5)
Ne025 V. Pomieri, C.da Pomieri, Castelbuono (PA) 1300 m VB177900 (3-7)
Ne026 T. San Nicola, viadotto Ortaggi, Petralia Sottana (PA) 1320 m VB1991 (2-2)
Ne027 Sorgente P. Argentiera, Portella Mandarini, Geraci Siculo (PA) 1150 m VB223917 (1-1)
Ne028 T. Vicaretto, ponte Paratore, Castelbuono (PA) 310 m VB2295 (3-7)

Ne029 V. dei Molini, a monte di ponte Nocilla, Geraci Siculo (PA) 460 m VB2393 (1-8)
Ne030 V. dei Molini, Castelbuono (PA) 350 m VB2395 (1-2)
Ne031 Sud Est di Castelbuono (PA) VB29 (2-2)
Ne032 T. Grosso, Case Parissi, Geraci Siculo (PA) 350 m VB278935 (1-3)
Ne033 Abisso del Vento, Cozzo Balatelle, Isnello (PA) 843 m VB1398 (2-2)

Bacino del Fiume di S. Stefano
Nf034 Sorgente Bosco di Mistretta, C. Pelato, Mistretta (ME) 1100 m VB477944 (1-3)
Nf035 Ruscello presso Lago Quattrocchi, Mistretta (ME) 1100 m VB5293 (1-1)

Bacino del Fiume di Caronia
Ng036 Sorgente Case Crocitti, Caronia (ME) 850 m VC489018 (3-4)
Ng037 Sorgente Case Crocitti, Madonna della Neve, Caronia (ME) 840 m VC490018 (1-2)
Ng038 Sorgente Case Crocitti, Madonna della Neve, Caronia (ME) 870 m VC491014 (1-2)
Ng039 Sorgente versante Nord Est M. Trefinaidi, Caronia (ME) 700 m VC490024 (1-5)
Ng040 Ruscello pressi Case Scansavento, Caronia (ME) 565 m VC494024 (2-5)
Ng041 Sorgente Case Mascellino, Mistretta (ME) 1200 m VB5194 (3-7)
Ng042 Sorgente Serra della Testa, Caronia (ME) 1100 m VB5297 (4-3)
Ng043 Laghetto pressi Abbeveratoio Lavanghi, Caronia (ME) 1275 m VB533956 (1-1)
Ng044 Sorgente versante Nord Timpone Mirio, Caronia (ME) 1460 m VB558948 (1-1)
Ng045 Stagno versante Nord Timpone Mirio, Caronia (ME) 1300 m VB5594 (1-1)
Ng046 Sorgente versante Nord Portella dell'Obolo, Caronia (ME) 1500 m VB565954 (2-5)
Ng047 Sorgente C. Moglia, Portella Creta, Caronia (ME) 1300 m VB567968 (5-8)
Ng048 Sorgente C. Moglia, Portella Creta, Caronia (ME) 1300 m VB5696 (2-1)
Ng049 Sorgente C. Moglia, Portella Creta, Caronia (ME) 1320 m VB567963 (1-1)
Ng050 F. Caronia, Trappeto Marchina, Caronia (ME) 150 m VC5105 (1-2)
Ng051 Sorgente pressi Case Molaro, Caronia (ME) 450 m VC502043 (3-3)

Bacino del Vallone San Giorgio
Nh052 Sorgente P.zo Michele, C.da Sorba, Caronia (ME) 330 m VC584086 (1-1)

Bacino del Torrente Furiano
Ni053 Rivolo stagno di Pantana, P.zo della Battaglia, San Fratello (ME) 930 m VC6000 (1-1)
Ni054 Sorgente versante Nord Ovest Pizzo Pilato, Capizzi (ME) 1420 m VB613947 (1-1)
Ni055 Sorgente C.da Fontana Mucciata, Cesarò (ME) 1410 m VB674944 (2-2)
Ni056 Sorgente C.da Fontana Mucciata, Cesarò (ME) 1320 m VB678951 (1-2)
Ni057 Sorgente C.da Fontana Mucciata, P.lla della Miraglia, Cesarò (ME) 1410 m VB6794 (1-1)
Ni058 Affluente T. Caprino, P.lla Femminamorta, San Teodoro (ME) 1100 m VB7097 (2-2)
Ni059 T. di S. Fratello, pressi Case Mamma, San Fratello (ME) 330 m VC6302 (1-4)
Ni060 T. Nicoletta, ponte Nicoletta, San Fratello (ME) 170 m VC6107 (1-1)
Ni061 20 km Nord Ovest di Cesarò (ME) 1300 m VB79 (1-7)

Bacino della Fiumara di Inganno
Nj062 F.ra d'Inganno, S. Agata di Militello (ME) 50 m VC6612 (2-3)
Nj063 F.ra d'Inganno, Monte Soro, Cesarò (ME) 850 m VC665026 (1-1)

Bacino del Torrente Rosmarino
Nk064 P.zo Maulazzo, Cesarò (ME) 1400 m VC7100 (2-2)
Nk065 Sorgente versante Nord Ovest M. Soro, Cesarò (ME) 1600 m VB726990 (1-2)
Nk066 Sorgente versante Ovest M. Soro, Cesarò (ME) 1800 m VB7298 (1-1)
Nk067 Sorgente C.da Sollazzo Verde, M. Soro, Cesarò (ME) 1600 m VB732993 (1-2)
Nk068 Stagno versante Sud Est M. Soro, Cesarò (ME) 1780 m VB735982 (2-1)
Nk069 Sorgente versante Nord M. Soro, Cesarò (ME) 1600 m VB738993 (1-2)
Nk070 Sorgente pressi Case Monica, Alcara li Fusi (ME) 1250 m VC756062 (1-1)
Nk071 Affluente T. Rosmarino, pressi Rocca Calanna, Longi (ME) 700 m VC7606 (1-2)

Nk072 Sorgente Malirò, Rocche del Crasto, Longi (ME) 1100 m VC765096 (1-1)
Nk073 Affluente T. Pistone, Bosco di Mangalaviti, Longi (ME) 1330 m VC7901 (1-4)
Nk074 Affluente T. Scavioli, pressi Case Mangalaviti, Longi (ME) 1200 m VC7903 (1-2)
Nk075 V. Pistone, Serra del Re, Alcara li Fusi (ME) 1090 m VC792020 (1-6)
Nk076 Sorgente Piano Menta, Serra del Re, Alcara li Fusi (ME) 1540 m VC794000 (1-3)
Nk077 Ruscello sorgivo pressi Case Mangalaviti, Longi (ME) 1270 m VC8002 (1-1)
Nk078 Sorgente S. Pignataro, C.da Mangalaviti, Longi (ME) 1300 m VC805023 (1-2)

Bacino del Fiume di Zappulla
Nl079 F. di Zappulla, Ponte Cavaliere, Rocca di Caprileone (ME) 50 m VC7518 (1-1)
Nl080 V. Pagliazzo, Ponte del Giudice, S. Salvatore di Fitalia (ME) 300 m VC805137 (1-1)
Nl081 F. Fitalia, Tortorici (ME) 400 m VC8509 (1-1)

AREA O

Bacino del Fiume di Marcanzotta
Oa001 Fonte Timp. Pozzillo, Marsala (TP) 60 m TB892923 (1-1)
Oa002 F. di Cuddia, ponte di Cuddia, Paceco (TP) 60 m TB912960 (1-3)

Bacino del Rio Baiata
Ob003 T. Lenzi, ponte S.S.113, Paceco (TP) 40 m TC893089 (1-2)

Bacino del Fiume Freddo
Oc004 Affl. F. Freddo, Segesta, Calatafimi (TP) 300 m UC0902 (1-1)
Oc005 F. Gaggera, Ponte Bagni, Calatafimi (TP) 80 m UC1404 (2-4)
Oc006 F. Caldo, pressi stazione di Alcamo (TP) 20 m UC170063 (1-1)

Bacino del Torrente Calatubo
Od007 T. Calatubo, ponte S.S. 187, Balestrate (TP) 10 m UC230114 (1-2)

Bacino del Fiume Iato
Oe008 F. Iato, S. Cipirello (PA) 210 m UC3603 (3-3)
Oe009 F. Iato, P.lla d. Paglia, P.na degli Albanesi (PA) 1100 m UC455085 (1-1)

Bacino del Fiume Oreto
Of010 Sorgente versante Nord Ovest M. Pizzuta, P.na Albanesi (PA) 1100 m UC473070 (1-1)
Of011 F. S. Elia, C.da Caculla, Monreale (PA) 400 m UC4412 (3-5)
Of012 F. Oreto, Fontana Lupo, Monreale (PA) 110 m UC5014 (1-1)
Of013 F. Oreto, Case Olio di Lino, Monreale (PA) 97 m UC5215 (5-6)
Of014 F. Oreto, S. Caterina, Monreale (PA) 50 m UC5316 (2-3)
Of015 F. Oreto, Ponte Corleone, Palermo (PA) 27 m UC5518 (1-2)

Bacino del Fiume Delia
Og016 Ruscello pressi C. della Dimina, Posillesi, Salemi (TP) 300 m UB016881 (1-3)
Og017 F. Grande, Borgo di Buturro, S. Ninfa (TP) 115 m UB0582 (1-2)
Og018 Sorgente pressi Grotta dell'acqua, Santa Ninfa (TP) 350 m UB1583 (1-1)
Og019 Ruscello pressi Mulino Galia, Salemi (TP) 210 m UB092872 (1-3)

Bacino del Fiume Modione
Oh020 F. Modione, Val di Margio, Castelvetrano (TP) 8 m UB085625 (1-1)
Oh021 F. Modione, Latomie, Campobello di Mazara (TP) 50 m UB0666 (1-1)

Bacino del Fiume Belice
Oi022 F. Belice, 200 m dalla foce, Porto Palo (TP) 5 m UB1162 (4-5)
Oi023 F. Belice, a sud ponte S.S. 115, Castelvetrano (TP) 20 m UB1164 (3-5)
Oi024 F. Belice, Serralonga (TP) 12 m UB1165 (5-6)

Oi025 V. Don Antono, S.S.118, Partanna (PA) 60 m UB1876 (1-1)
Oi026 F. Belice, S.S.188 (PA) 60 m UB1976 (3-5)
Oi027 F. Belice destro, Poggioreale (PA) 100 m UB250795 (1-1)
Oi028 F. Belice destro, Ponte Sparacia, Roccamena (PA) 250 m UB390923 (1-2)
Oi029 F. Belice sinistro, P.te Frattina, Roccamena (PA) 210 m UB398867 (1-1)
Oi030 F. Grande, Piana degli Albanesi (PA) 380 m UC4700 (1-1)
Oi031 F. Belice, Masseria Manali, Piana degli Albanesi (PA) 380 m UC4700 (1-2)
Oi032 V. del Catagnano, Lupotto, Piana degli Albanesi (PA) 590 m UB525975 (1-1)
Oi033 F.so Manganoce, Piana degli Albanesi (PA) 615 m UC527044 (1-1)
Oi034 Affluente T. di Realbate, Campofiorito (PA) 300 m UB4183 (2-2)
Oi035 T. di Realbate, Bisacquino (PA) 600 m UB4575 (1-1)
Oi036 T. Batticano, Case Palazzo, Corleone (PA) 375 m UB4583 (1-1)
Oi037 T. Batticano, C.da Torrazza, Corleone (PA) 270 m UB425869 (1-4)
Oi038 T. di Corleone, Casa Cantoniera, Corleone (PA) 680 m UB5484 (1-2)
Oi039 T. di Corleone, a monte confluenza F. Belice, Corleone (PA) 290 m UB4689 (1-2)
Oi040 F. di Frattina, pressi di P.zo Arcuri, Ficuzza (PA) 610 m UB5695 (1-2)
Oi041 Lumi i Varfrit, P.na degli Albanesi (PA) 620 m UC507063 (1-4)

Bacino del Fiume Carboj
Oj042 F. Carboj, Ponte Carboj, Menfi (AG) 80 m UB2862 (1-1)

Bacino del Fiume Verdura
Ok043 Sorgente T. Landro, Giuliana (PA) 670 m UB422735 (1-2)
Ok044 Sorgente F. Sosio, Palazzo Adriano (PA) 300 m UB518684 (3-5)
Ok045 F. Sosio, Ponte Sosio, Prizzi (PA) 580 m UB6074 (2-5)
Ok046 F. Sosio, Ponte Grande, Palazzo Adriano (PA) 510 m UB567732 (1-4)
Ok047 F. Sosio, Palazzo Adriano (PA) 280 m UB5168 (3-7)
Ok048 F. Sosio, San Carlo (AG) 190 m UB4665 (1-6)
Ok049 F. Verdura, C.zo Tragaleggi, Calamonaci, Ribera (AG) 95 m UB4756 (3-3)
Ok050 F. Verdura, Ponte S.S. 115, Ribera (AG) 30 m UB4350 (1-2)

Bacino del Fiume Magazzolo
Ol051 Sorgente Serra del Biondo, Bivona (PA) 830 m UB535654 (1-2)

Bacino del Fiume Platani
Om052 V. Refalzafi, Castronuovo di Sicilia (PA) 750 m UB715726 (1-2)
Om053 Igropetrico F. Platani, Castronuovo di Sicilia (PA) 600 m UB7371 (2-4)
Om054 F. di Montedoro, Castronuovo di Sicilia (PA) 380 m UB8071 (2-2)
Om055 F. Platani, a valle invaso Fanaco, Castronuovo di Sicilia (PA) 400 m UB8070 (1-3)
Om056 F. Platani, pressi S.S. 189, Castronuovo di Sicilia (PA) 360 m UB8170 (2-2)
Om057 F. Platani, San Giovanni Gemini (AG) 310 m UB8368 (1-1)
Om058 F. Morello, ponte Morello, Castronuovo (PA) 420 m UB8074 (1-1)
Om059 F. Gallo d'Oro, strada tra Montedoro e Serradifalco (CL) 310 m UB9644 (1-1)
Om060 T. Belici, Stazione di Marianopoli (CL) 330 m VB0264 (4-4)
Om061 Sorgente M. le Fosse, villaggio Grotta Murata, Raffadali (AG) 300 m UB667457 (1-2)

Area P

Bacino del Fiume di Naso
Pa001 V. Capito, S. Antonio, Naso (ME) 350 m VC816174 (1-2)
Pa002 Sorgente Ficheruzza, C. Munidari, Naso (ME) 400 m VC819169 (1-2)
Pa003 F. di Naso, tratto terminale, Brolo (ME) 5 m VC8223 (2-7)
Pa004 F. di Naso, Sinagra (ME) 200 m VC8715 (4-8)
Pa005 F.ra di Sinagra, Ucria (ME) 600 m VC9011 (4-7)

Bacino del Torrente Timeto
Pb006 Sorgente M.ti Taffuri, San Piero Patti (ME) 1050 m VC979067 (1-1)
Pb007 T. Timeto, Patti (ME) 50 m VC9819 (1-1)

Bacino del Torrente Elicona

Pc008 Affluente T. Cannavella, pendici M. Roccaincavalcata, Montalbano Elicona (ME) 1030 m WC0205 (1-5)
Pc009 Sorgente T. Uomomorto, Roccella Valdemone (ME) 1150 m VC974054 (1-1)
Pc010 T. Uomomorto, pendici M.ti Taffuri, Montalbano Elicona (ME) 970 m VC9806 (1-2)
Pc011 T. Bonino, C.da Piano Cella, Montalbano Elicona (ME) 970 m WC0005 (1-5)
Pc012 T. Elicona, pressi C. Ponte, Montalbano Elicona (ME) 500 m WC0010 (2-7)
Pc013 Affluente T. Elicona, pressi C. Ponte, Montalbano Elicona (ME) 500 m WC0010 (1-6)
Pc014 T. Elicona, C.da Cugno Finocchio, S. Barbara (ME) 210 m WC0214 (1-5)
Pc015 T. Elicona, a monte ponte autostrada, Oliveri (ME) 20 m WC0518 (2-10)

Bacino del Torrente Mazzarrà

Pd016 T. Tellarita, pressi Case Archera, Tripi (ME) 450 m WC0610 (1-8)
Pd017 T. Paratore, C.da Palazzo, Tripi (ME) 390 m WC0708 (1-5)
Pd018 T. Vallebona, Badia Vecchia (ME) 500 m WC0905 (1-2)
Pd019 Affluente T. San Giorgio, C.da Rosano, Novara di Sicilia (ME) 850 m WC1207 (1-6)
Pd020 T. Leopoldo, Serro Bambuscili, San Marco (ME) 440 m WC1210 (1-3)

Bacino del Torrente Termini

Pe021 Sorgente pendici settentrionali M. di Vernà, Frascianida (ME) 990 m WC2107 (1-2)
Pe022 Affluente F.ra di S. Venera, C.da Zaccani, Frascianida (ME) 640 m WC2108 (1-9)
Pe023 Sorgente Santa Venera del Bosco, Frascianida (ME) 500 m WC190092 (1-5)
Pe024 F.ra di Floresta, Santa Venera del Bosco, Frascianida (ME) 450 m WC2009 (3-14)
Pe025 Sorgente F.ra di Floresta, Santa Venera del Bosco, Frascianida (ME) 430 m WC198097 (2-3)
Pe026 Affluente V. Galbazzi, Frascianida (ME) 450 m WC1607 (1-1)
Pe027 Affluente T. Ruzzolino, a valle cascata, Bafia (ME) 250 m WC1613 (1-3)

Bacino del Fiume Mela

Pf028 F. Mela, a valle di S. Lucia del Mela (ME) 130 m WC2321 (1-3)
Pf029 V. Lacino, Santa Lucia del Mela (ME) 450 m WC2615 (2-5)
Pf030 F.ra di Santa Lucia, Santa Lucia del Mela (ME) 355 m WC2615 (1-8)
Pf031 T. Cerasiera, Santa Lucia del Mela (ME) 460 m WC2713 (1-8)
Pf032 V. Mandrazza, C. Mazze, S. Lucia del Mela (ME) 590 m WC271130 (1-2)
Pf033 V. Mandrazza, C. Mazze, S. Lucia del Mela (ME) 510 m WC273134 (1-1)
Pf034 Sorgente su parete pressi affluente T. Cerasiera, Santa Lucia del Mela (ME) 550 m WC2713 (1-1)
Pf035 Sorgente V. Mandrazza, S. Lucia del Mela (ME) 570 m WC273128 (2-9)
Pf036 V. Ferra, a valle cascata Sghiccia saitta, Santa Lucia del Mela (ME) 540 m WC2713 (1-8)

Bacino del Torrente Muto

Pg037 V. Maggiotta, a monte conf. T. di Gualtieri, Gualtieri Sicaminò (ME) 330 m WC2919 (1-4)
Pg038 T. di Gualtieri, pressi conf. V. Maggiotta, Gualtieri Sicaminò (ME) 280 m WC2919 (1-4)
Pg039 Sorgente pressi Cascate Cataolo, Gualtieri Sicaminò (ME) 210 m WC2920 (2-5)
Pg040 T. di Gualtieri, a valle Cascate Cataolo, Gualtieri Sicaminò (ME) 210 m WC2920 (1-7)

Bacino della Fiumara di Niceto

Ph041 V. Pietramolino, Pietramolino, San Pier Niceto (ME) 440 m WC3118 (1-8)
Ph042 F.ra di Niceto, Serro Girasara, San Pier Niceto (ME) 200 m WC3420 (1-8)
Ph043 V. Pietra Rossa, pressi M. Perretta, Monforte San Giorgio (ME) 430 m WC3520 (1-9)

Bacino del Rio Salemi

Pi044 Fontana Fre, Gesso (ME) 220 m WC4032 (1-1)

Bacino del Torrente di Larderia
Pj045 V. Zacconi, Fossa Maidda, Larderia Superiore (ME) 400 m WC4122 (1-10)

Bacino del Torrente Altolia
Pk046 Ramo destro affluente T. Altolia, Altolia (ME) 430 m WC3814 (1-6)
Pk047 Ramo sinistro affluente T. Altolia, Altolia (ME) 370 m WC3814 (1-4)
Pk048 Sorgente pressi ramo sinistro affluente T. Altolia, Altolia (ME) 410 m WC3814 (1-2)
Pk049 Ramo sinistro affluente T. Altolia, Altolia (ME) 430 m WC3814 (1-4)
Pk050 T. Altolia, C.da Ciarello, Altolia (ME) 440 m WC3815 (1-5)
Pk051 Affluente T. Altolia, C.da Ciarello, Altolia (ME) 440 m WC3815 (1-3)

Bacino del Torrente Racinazzo
Pl052 T. Racinazzo, Scaletta Zanclea (ME) 320 m WC4012 (1-1)

Bacino del Torrente Itala
Pm053 Sorgente Acqua Rosara, M. Scuderi, Itala (ME) 900 m WC357133 (1-4)
Pm054 F.ra di Franco, C. Messario, Itala (ME) 400 m WC3611 (2-4)
Pm055 V. Salice, Culma Caravagi, Itala (ME) 500 m WC3612 (1-9)
Pm056 Sorgente Canale Cicco, M. Scuderi, Itala (ME) 900 m WC369137 (1-1)
Pm057 F. di Mucari, Culma Caravagi, Itala (ME) 510 m WC3712 (1-10)

Bacino del Torrente Alì
Pn058 T. Alì, Alì (ME) 550 m WC3611 (1-12)

Bacino del Fiume Fiumedinisi
Po059 V. Soldato, pendici M. Scuderi, Fiumedinisi (ME) 620 m WC3313 (12-14)
Po060 C.da Conte, Fiumedinisi (ME) 600 m WC3109 (2-2)
Po061 T. Santissima, C.da Saia, Fiumedinisi (ME) 550 m WC3313 (3-7)
Po062 T. Capitanello, C.da Badessa, Fiumedinisi (ME) 400 m WC3108 (11-12)
Po063 F. di Colonnina, pressi P.zo Strumbo, Fiumedinisi (ME) 400 m WC3111 (8-12)
Po064 T. Vacco, pressi P.zo Strumbo, Fiumedinisi (ME) 400 m WC3111 (8-9)
Po065 T. Vacco, C.da Intera, Fiumedinisi (ME) 350 m WC3110 (14-12)
Po066 T. Santissima, pressi P.zo Paparello, Fiumedinisi (ME) 320 m WC3310 (9-7)
Po067 T. Vacco, C.da Vacco, Fiumedinisi (ME) 300 m WC320107 (2-5)
Po068 T. Vacco, Migliuso, Fiumedinisi (ME) 270 m WC324103 (2-2)
Po069 F. Fiumedinisi, a valle conf. T. Vacco, Fiumedinisi (ME) 260 m WC3209 (1-6)
Po070 T. Fiumedinisi, a monte di Fiumedinisi (ME) 200 m WC3209 (4-6)
Po071 F. Fiumedinisi, pressi abitato di Fiumedinisi (ME) 160 m WC3308 (10-9)
Po072 F. Fiumedinisi, a valle depuratore, Fiumedinisi (ME) 130 m WC3408 (5-4)
Po073 T. Fiumedinisi, a valle di Fiumedinisi (ME) 90 m WC3407 (1-1)

Bacino del Torrente Pagliara
Pp074 F.ra Dinarini, Santoleo, Mandanici (ME) 640 m WC2708 (1-2)
Pp075 F.ra Dinarini, a monte di Mandanici (ME) 450 m WC2707 (1-1)
Pp076 T. Cavallo, Mandanici (ME) 400 m WC2807 (2-5)

Bacino del Torrente Savoca
Pq077 V. Vernà, a monte di Misitano (ME) 520 m WC2205 (2-10)
Pq078 F.ra di San Filippo, C.da Camarda, Misitano (ME) 690 m WC2408 (3-17)
Pq079 F.ra di San Filippo, a monte di Artale (ME) 450 m WC2505 (1-12)
Pq080 Casalvecchio (ME) 400 m WC20 (2-5)

Bacino della Fiumara di Agrò
Pr081 Versante Nord Ovest M. di Vernà, Antillo (ME) WC10 (1-2)
Pr082 Sorgente pendici M. di Vernà, Antillo (ME) 760 m WC2006 (1-1)

Pr083 Sorgente pressi ramo sinistro T. di Antillo, Antillo (ME) 800 m WC2006 (1-3)
Pr084 Ramo sn T. di Antillo, Montagna di Vernà, Antillo (ME) 700 m WC2006 (4-8)
Pr085 Ramo sn T. di Antillo, pressi P.zo Terradi, Antillo (ME) 600 m WC2005 (5-13)
Pr086 Affluente Ramo sn T. di Antillo, C.da Friddavini, Antillo (ME) 600 m WC2005 (3-10)
Pr087 Ramo sn T. di Antillo, Costa Ciappi, Antillo (ME) 500 m WC1904 (1-3)
Pr088 Affluente Ramo ds T. di Antillo, C.da Straola, Antillo (ME) 780 m WC1804 (3-8)
Pr089 Ramo ds T. di Antillo, C.da Saloga, Antillo (ME) 730 m WC1803 (2-7)
Pr090 Sorgente C.da Castagna, Antillo (ME) 590 m WC193040 (1-5)
Pr091 Ramo ds T. di Antillo, C.da Castagna, Antillo (ME) 550 m WC1904 (7-12)
Pr092 Affluente F.so Girasia, pressi Case Spadaro, Antillo (ME) 760 m WB1799 (4-12)
Pr093 Torrente C.da Barbaschi, Antillo (ME) 650 m WC1902 (1-8)
Pr094 Affluente F.so Girasia, pressi Portellarossa, Limina (ME) 590 m WB2199 (3-8)
Pr095 Affluente F.so Girasia, pressi Portella del Vento, Limina (ME) 570 m WB2098 (1-9)
Pr096 F.so Girasia, C.da Masseria, Limina (ME) 560 m WB2098 (5-17)
Pr097 Affluente F.so Girasia, C.da Barbara, Antillo (ME) 540 m WC1900 (3-12)
Pr098 Affluente F.so Girasia, pressi P.zo Monaco, Antillo (ME) 400 m WC2101 (4-11)
Pr099 F.so Girasia, conf. T. di Antillo, Antillo (ME) 260 m WC2301 (5-10)
Pr100 T. di Antillo, a monte di Antillo (ME) 470 m WC2004 (3-9)
Pr101 T. di Antillo, pressi campo sportivo, Antillo (ME) 430 m WC2003 (1-2)
Pr102 T. di Antillo, a monte di Antillo (ME) 420 m WC213034 (1-2)
Pr103 T. di Antillo, C.da Campanella, Antillo (ME) 270 m WC2301 (8-13)
Pr104 V. Mitta, Mitta, Antillo (ME) 230 m WC2401 (6-11)
Pr105 F.ra di Agrò, Mitta, Antillo (ME) 130 m WC2401 (4-11)
Pr106 F.ra di Agrò, Faderechi, Casalvecchio Siculo (ME) 85 m WC2501 (2-5)
Pr107 F.ra di Agrò, S. Pietro, Casalvecchio Siculo (ME) 45 m WB2799 (2-3)

Bacino del Torrente Letojanni
Ps108 T. Bottaro, a monte Santuario, Mongiuffi-Melia (ME) 560 m WB2297 (4-9)
Ps109 T. Postoleone, Mongiuffi-Melia (ME) 310 m WB2495 (2-6)

Bacino del Torrente Sirina
Pt110 T. Sirina, C.da Ciccione, Castelmola (ME) 130 m WB2489 (1-1)
Pt111 T. Sirina, pressi ponte autostrada, Castelmola (ME) 30 m WB2489 (1-5)

Bacino del Vallone Santa Venera
Pu112 Canale acquedotto, Taormina (ME) 200 m WB2292 (1-1)

Bacino del Fiume Alcantara
Pv113 T. Grassetta, C.da Batessa, Floresta (ME) 1200 m VC8604 (2-2)
Pv114 T. Grassetta, Giuffrè, Floresta (ME) 1170 m VC887017 (1-1)
Pv115 F. Flascio, C.da Tre Nasche, Floresta (ME) 1150 m VC887005 (1-2)
Pv116 F. Flascio, Bosco del Flascio, Randazzo (CT) 930 m VB8994 (2-5)
Pv117 F. Alcantara, Randazzo (CT) 810 m VB9495 (4-5)
Pv118 F. Alcantara, a monte di Randazzo (CT) 750 m VB9493 (2-7)
Pv119 F. Flascio, Randazzo (CT) 700 m VB9492 (6-7)
Pv120 Rivolo sorgivo F. Alcantara, Floresta (ME) 1200 m VC9205 (2-5)
Pv121 Igropetrico, Floresta (ME) 700 m VC9204 (4-6)
Pw122 Sorgente M. Polverello, Roccella Valdemone (ME) 1260 m VC965038 (1-1)
Pw123 T. Fontanazzi, Malabotta, Roccella Valdemone (ME) 1150 m WC0401 (1-5)
Pw124 T. Licopeti, Malabotta, Roccella Valdemone (ME) 1110 m WC0302 (1-5)
Pw125 T. Licopeti, Malabotta, Roccella Valdemone (ME) 1090 m WC0302 (6-14)
Pw126 T. Licopeti, C.da di Revocato, Roccella Valdemone (ME) 750 m WC0000 (4-10)
Pw127 T. Roccella, a valle di Roccella Valdemone (ME) 570 m WB0096 (1-6)
Px128 T. Petrulla, Malvagna (ME) 925 m WB0399 (3-8)
Px129 T. Dogala, Malvagna (ME) 800 m WB0498 (3-12)

Px130 T. Ruggirotto, Malvagna (ME) 775 m WB0498 (2-7)
Px131 F. Alcantara, Moio Alcantara (ME) 525 m WB0594 (4-4)
Px132 F. Alcantara, a valle di Moio Alcantara (ME) 480 m WB0695 (2-4)
Px133 Ramo ds F.so Scavuzzo, C.da Cardone, Francavilla (ME) 670 m WC0601 (8-9)
Px134 Ramo sn F.so Scavuzzo, C.da Cardone, Francavilla (ME) 670 m WC0601 (10-7)
Px135 Affluente F.so Scavuzzo, pressi Case Scavuzzo, Francavilla (ME) 630 m WC0701 (9-6)
Px136 F.so Scavuzzo, a monte conf. F. Ferrozeddo, Francavilla (ME) 585 m WC0800 (13-10)
Px137 F.so Ferrozeddo, pressi Borgo Morfia, Francavilla (ME) 620 m WC0901 (5-11)
Px138 F. San Paolo, Borgo Piano Torre, Francavilla (ME) 480 m WB100990 (2-4)
Px139 Sorgente F. San Paolo, Borgo Piano Torre, Francavilla (ME) 500 m WB104993 (1-1)
Px140 Affluente F. San Paolo, pressi Borgo Piano Torre, Francavilla (ME) 465 m WB1099 (11-9)
Px141 F. San Paolo, Ponte Guardione, Francavilla (ME) 450 m WB0998 (14-6)
Px142 F. di Mancina, a monte di Ponte Laurelli, Francavilla (ME) 470 m WB0999 (2-3)
Px143 F. San Paolo, a monte di Francavilla (ME) 350 m WB1195 (2-4)
Px144 F. San Paolo, pressi depuratore, Francavilla (ME) 220 m WB1394 (8-3)
Px145 7 km Nord Ovest Francavilla di Sicilia (ME) WB09 (4-2)
Px146 Sud Est Francavilla di Sicilia (ME) 300 m WB19 (5-7)
Px147 T. San Cataldo, pressi di P.zo Palombaro, Motta Camastra (ME) 450 m WB1795 (5-10)
Px148 T. San Cataldo, pressi di Serra Mauro, Motta Camastra (ME) 250 m WB1794 (3-7)
Px149 Abbeveratoio pressi T. San Cataldo, Motta Camastra (ME) 250 m WB1794 (1-4)
Px150 T. Petrolo, a monte di Graniti (ME) 320 m WB2094 (1-2)
Px151 F. Alcantara, Calatabiano (ME) 30 m WB2186 (1-1)
Px152 F. Alcantara, a valle gole, Motta Camastra (ME) 140 m WB1592 (1-1)
Px153 F. Alcantara, Mitogio (CT) 120 m WB168919 (2-2)
Px154 F. Alcantara, C.da Varaggio, Calatabiano (ME) 50 m WB2087 (1-2)
Px155 F. Alcantara, Giardini Naxos (ME) 20 m WB2185 (3-5)
Px156 F. Alcantara, foce, Giardini Naxos (ME) 0.5 m WB2284 (2-1)

Bacino del Torrente Minissale
Py157 T. Minissale, foce, Fiumefreddo di Sicilia (ME) 0.5 m WB2183 (1-2)

Bacino del Torrente Fiumefreddo
Pz158 T. Fiumefreddo, foce, Fiumefreddo di Sicilia (CT) 0.5 m WB2082 (1-2)
Pz159 T. Fiumefreddo, pressi sorgente Quadare, Fiumefreddo di Sicilia (CT) 5 m WB2082 (1-2)
Pz160 Canale della Sorgente Bagnara Savuco, Fiumefreddo di Sicilia (CT) 15 m WB1982 (1-3)

Area S

Bacino del Fiume Imera meridionale
Sa001 Sorgente versante Sud P.zo Catarineci, Petralia Soprana (PA) 1380 m VB240877 (1-1)
Sa002 Sorgente versante Sud Est P.zo Catarineci, Petralia Soprana (PA) 1180 m VB251875 (1-1)
Sa003 V. Scoplacqua, C.da Mandarini, Geraci Siculo (PA) 1230 m VB2189 (3-6)
Sa004 Sorgente P.lla Faluzza, Nociazzi (PA) 1100 m VB153857 (1-5)
Sa005 Sorgente versante Ovest M. Corvo, Gangi (PA) 1050 m VB258858 (1-1)
Sa006 Petralia Sottana (PA) 100 m VB28 (1-2)
Sb007 F. Morello, pressi L. Villarosa, Villarosa (EN) 500 m VB3065 (1-2)
Sb008 F. Morello, Stazione di Villarosa (EN) 360 m VB297585 (1-2)

Risultati

Catalogo sistematico geonemico delle specie rinvenute.

Le specie reperite sono elencate secondo l'ordinamento sistematico della Limnofauna Europaea (Botosaneanu & Malicky, 1978). Per ciascuna specie vengono riportati i codici delle località di rinvenimento seguiti da date di raccolta, numero di indi-

vidui (alati e stadi acquatici), sigla dei raccoglitori o dato bibliografico. Le sigle "la" e "pu", seguite da un numero, indicano rispettivamente il numero di larve o pupe mentre "larve" e "pupe" indicano abbondanti esemplari raccolti. Con la sigla "f.v." si indicano i foderi vuoti.

Ai raccoglitori sono attribuite le seguenti sigle: Al. = Alicata, Bu. = Burchard, Ch. = Chiappafreddo, Ci. = Cianficconi, Co. = Conci, Con. = Consiglio, DeP. = De Pietro, DiG. = Di Giovanni, D'U. = D'Urso, Fa. = Fanò, Fe. = Ferrito, Fi. = Filomeno, Ge. = Gerecke, Gi. = Gianotti, Gr. = Grasso, LaG. = La Greca, Ma. = Marini, Mo. = Moretti, Os. = Osella, Pi. = Pirisinu, Ra. = Ravizza, Ri. = Riggio, Ro. = Roncone, Ru. = Ruffo, Si. = Sichel, Vi. = Viganò.

Per le specie vengono fornite informazioni su corologia, aspetti tassonomici e presenza in Sicilia (aree geografiche, zonazione, periodi di presenza di pupe ed adulti, distribuzione altitudinale).

Le segnalazioni (si tratta quasi esclusivamente di larve o di pupe) di esemplari che non è stato possibile identificare a livello specifico vengono indicate con il nome generico.

Famiglia Rhyacophilidae

Rhyacophila hartigi Malicky, 1971

Ea033 - 05/08/92: 1 la. DeP. - 02/07/94: 1 la. DeP. **Ea034** - 04/08/92: 1 la. DeP. - 02/07/94: 1 la. DeP. **Ea037** - 23/10/92: 1 ♂, 1 ♀ DeP. - 12/11/93: 1 ♀ DeP. - 28/01/94: 3 la. DeP. - 02/07/94: 2 la. DeP. **Ea043** - 02/07/94: 1 la. DeP. **Ea050** - 19/11/85: 3 ♂, larve, pupe Botosaneanu et al., 1986 **Ec082** - 09/04/61: 1 ♂ Mo. **Nk075** - 26/06/86: larve, pupe Ge. Bu. **Pc012** - 17/04/96: 6 la. DeP. **Pc014** -17/04/96: 2 la. DeP. **Pe022** - 26/08/92: 2 pu. DeP. **Pe024** -23/06/95: 3 la., 1 pu. DeP. **Po059** -17/01/94: 5 la. DeP. **Pq078** - 06/07/95: 1 la. DeP. **Pr085** -06/05/95: 1 la. DeP. **Pr095** -20/05/95: 3 la. DeP. **Pr096** -20/05/95: 1 la. DeP. **Pr098** -20/05/95: 4 la. DeP. - 01/08/95: 1 pu. DeP. **Pr099** -29/04/95: 2 la. DeP. - 25/04/96: 12 la. DeP. **Pr103** -29/04/95: 1 la. DeP. - 25/04/96: 2 la. DeP. **Pr105** -06/05/95: 4 la. DeP. **Pr106** -06/05/95: 1 la. DeP. - 25/04/96: 1 pu. DeP. **Pr107** -25/04/96: 2 la DeP. **Pv117** -09/04/61: 1 ♂ Ci., Gi., Mo. **Pv118** -10/10/92: DeP. **Pv119** -14/06/85: larve, pupe Ge. **Px131** -08/10/67: 5 ♂ Ci., Gi., Pi. **Px144** -15/11/93: 1 la. DeP. - 18/05/94: 1 ♂, 1 pu. DeP. **Px146** - 10/10/90: 2 ♂, 1 ♀ Malicky, 1992 **Px155** -10/06/85: 1 ♂ Ge. **Sa003** -30/05/85: larve, pupe Ci.

Appennino meridionale a sud del F. Vulture. Nell'Appennino centrale vicariata da *R. foliacea* Moretti, 1981; entrambe strettamente affini a *R. vulgaris* Pictet, 1834 a distribuzione europea (Cianficconi et al., 1986). Rhithral-epipotamal. Aprile-novembre. 20-1360 m s.l.m.

Rhyacophila rougemonti McLachlan, 1880

Ea002 -14/01/94: 1 la. DeP. **Ea003** -06/02/96: 4 la. DeP. **Ea007** -06/02/96: 3 la. DeP. **Ea008** -05/10/93: 3 la. 1 pu. DeP. -30/05/94: 1 la. DeP. -17/08/94: 2 la. DeP. -06/02/96: 2 la. DeP. **Ea009** -19/11/85: 1 ♀ Botosaneanu et al., 1986 -12/12/88: larve Fe. -19/05/89: larve Fe. **Ea011** -25/05/94: 2 la., 3 pu. DeP. **Ea012** - 30/05/94: 9 la. DeP. **Ea013** -25/05/94: 17 la., 3 pu. DeP. **Ea014** -25/05/94: 15 la. DeP. **Ea015** -30/05/94: 3 la. DeP. **Ea016** -01/09/92: 1 pu. DeP. **Ea018** -25/05/94: 26 la. 1 pu. DeP. **Ea030** -06/08/92: 7 la. DeP. **Ea031**-08/06/93: 1 la. DeP. -02/07/94: 1 la. DeP. **Ea032**-08/06/93: 1 la. DeP. -02/07/94: 1 la. DeP. **Ea033**-05/08/92: 2 la. DeP. -08/06/93: 2 la. DeP. -12/11/93: 1 la. DeP. -02/07/94: 1 la. DeP. -17/08/94: 1 la. DeP. **Ea034**-04/08/92: 3 la. DeP. -23/10/92: 2 la. DeP. -12/11/93: 2 la. DeP. -17/12/93: 3 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 1 la. DeP. **Ea035**-02/07/94: 1 la. DeP. **Ea036**-17/12/93: 3 la. DeP. -28/01/94: 2 la. DeP. **Ea037**-15/03/89: larve Fe. -20/06/89: larve Fe. -23/11/89: larve Fe. -30/05/92: 7 ♂ 2 ♀ DeP. -05/08/92: 3 ♀ 5 la. DeP. -23/10/92: 1 ♂ DeP. -08/06/93: 2 la. DeP. -12/11/93: 5 la. DeP. -17/12/93: 6 la. DeP. -28/01/94: 2 la. DeP. -17/08/94: 1 la., 1 pu. DeP. -28/12/95: 2 la. DeP. **Ea038**-01/09/92: 5 la. DeP. -17/11/92: 1 la. DeP. -02/07/94: 2 la. DeP. **Ea042**-23/05/94: 2 la. 1 pu. DeP. **Ea043**-28/02/94: 5 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 3 la., 1 pu. DeP. -22/02/96: 2 la. DeP. **Ea044**-17/08/94: 2 la. DeP. **Ea050**-19/11/85: 1 ♀ pupe

Botosaneanu et al., 1986 **Ea052**-17/11/92: 1 la. DeP. **Eb054**-17/06/85: 1 la. Ge. -20/04/86: 1 la. Ge. -18/02/89: 1 la. Ge. **Eb058**-24/05/89: larve Fe. **Eb059**-19/04/86: 1 la. Ge. **Eb060**-17/06/85: 1 la. Ge. **Eb063**-26/11/85: 1 la. Ge. **Ec070**-02/10/86: 2 la., pupe Ge. **Ec074**-21/11/85: larve Fe. **Ec075**-18/03/89: larve Fe. -22/06/89: larve Fe. -17/11/92: 1 la. DeP. **Ec076**-16/02/89: larve Fe. -25/05/89: larve Fe. **Ed084**-17/11/92: 2 la. DeP. **Ed085**-09/04/61: 4 la. Ci., Gi., Mo., Vi. **Ed086**-21/11/85: 1 ♂ 2 la. Botosaneanu et al., 1986 **Ee088**-14/03/93: 2 la. 2 pu. DeP. **Ee089**-14/03/93: 1 ♀ 1 la. 1 pu. DeP. **Ef091**-01/12/92: 1 pu. DeP. -30/04/94: 1 la. 1 pu. DeP. **Ef093**-01/12/92: 2 la. DeP. -30/04/94: 1 la. DeP. **Eg098**-06/06/91: 1 ♀ Malicky, 1992 **Ic003**-15/07/92: 5 pu. DeP. -06/11/92: 1 la. DeP. **Ic004**-10/04/93: 2 la. DeP. **Ic005**-02/10/87: larve Ge. -06/11/92: 1 la. DeP. -10/04/93: 1 la. DeP. -17/06/93: 2 la. DeP. -08/12/93: 3 la. DeP. **Id006**-10/04/93: 1 la. DeP. -17/06/93: 1 la. DeP. -08/12/93: 1 la. DeP. **Id007**-10/04/93: 1 la. DeP. **Ie008**-18/11/85: 1 ♂, larve, 1♀ pu. Ch., Ci. -22/05/97: 1 ♀, 5 la., 2 pu. DeP. **Ie009**-06/11/92: 5 la. DeP. -28/09/93: 2 la. DeP. - 30/04/94: 1 la. DeP. -10/06/94: 1 la., 2 pu. DeP. -25/07/94: larve, 1 pu. DeP. **Ie011**-06/11/92: 2 la. DeP. **Ie012**-18/09/85: 1 la. Ge. **If017**-21/01/93: 1 la. DeP. -22/04/93: 4 la. DeP. -17/06/93: 2 la. DeP. -28/09/93: 2 la. DeP. -10/06/94: 2 la. DeP. **If018**-24/09/92: DeP. -21/01/93: DeP. -28/09/93: 3 la. DeP. -10/06/94: 3 la. DeP. -05/10/95: 1 la. DeP. **If019**-21/01/93: 1 la. DeP. -22/04/93: 3 la. DeP. **If021**-11/11/86: larve Ge. -21/01/93: 1 la. DeP. -22/04/93: 1 la. DeP. -17/06/93: 2 la. DeP. -10/06/94: 2 la. DeP. -24/09/94: 1 pu. DeP. **If023**-25/07/94: 2 la. 1 pu. DeP. **Ig025**-21/01/93: 1 la. DeP. -22/04/93: 1 la. DeP. -17/06/93: 2 la. DeP. **Ig026**-09/06/91: 1 ♂ Malicky, 1992 **Ii028**-29/09/85: larve Ge. **Ij034**-14/03/93: 4 la. DeP. **Ij037**-14/03/93: 1 la. DeP. **Ij038**-14/03/93: 1 la. DeP. **Ik042**-13/04/86: 1 la. Ge. **Ik043**-14/03/93: 3 la. DeP. **Nc009**-25/06/85: 1 la. Ge. **Nd012**-5/09/94: 1 la. DeP. -15/09/94: DeP. **Ne016**-13/10/86: 1 la. Ge. **Ne017**-11/11/85: 1 la. Ge. -03/07/95: 2 la., 9 pu. DeP. **Ne021**-04/05/97: 2 la. DeP. **Ne025**-14/07/93: 4 la. DeP. **Ne028**-03/07/95: 6 pu. DeP. **Ne029**-03/07/95: 7 la. DeP. **Ne030**-02/03/75: 1 la. Ri. **Nf035** -27/11/85: larve, pupe Botosaneanu et al., 1986 **Ng038**-13/11/87: 2 ♂ Ge. **Ng039**-13/11/87: 1 ♀ Ge. **Ng046**-27/11/86: 1 ♂ Ge. **Ng047**-13/11/87: 1 ♂ Ge. **Ni059**-07/04/96: 1 pu. DeP. **Nk064**-26/06/86: 1 la. Ge. **Nk071**-07/04/96: 2 la. DeP. **Of011**-05/05/75: larve Ri. **Of013**-02/11/74: larve Ri. -21/09/76: pupe Ri. -30/05/77: larve Ri. **Og017**-06/09/86: pupe Ge. **Og019**-06/09/86: 2 la., 1 pu. Ge. **Oi024**-19/08/70: 1 ♀ Ro. **Oi030**-20/08/70: 4 la., 6 pu. Ro. **Oi034**-26/10/87: 1 ♂ Ge. **Oi037**-02/04/86: 1 la. Ge. **Oi038**-31/03/86: 1 la. Ge. **Oi039**-02/04/86: 1 la. Ge. **Oi041**-28/03/86: 1 la. Ge. **Ok043**-05/09/86: 1 la. Ge. **Ok044**-27/09/87: 1 la. Ge. **Ok045**-29/04/93: 3 la. DeP. **Ok046**-15/09/78: 1 ♂ Pi. **Ok047**-09/11/85: 1 la. Ge. **Ok048**-29/04/93: 2 la. DeP. **Om055**-22/04/95: 5 la. 1 pu. DeP. **Om060**-08/12/75: 1 la. Ri. **Pa002**-10/11/87: 1 pu. Ge. **Pc011**-27/06/96: 3 la. DeP. **Pc012**-17/04/96: 6 la. DeP. **Pc012**-31/07/96: 7 la. DeP. **Pc013**-17/04/96: 21 la. DeP. **Pc014**-17/04/96: 7 la. DeP. **Pc015**-17/04/96: 7 la. DeP. -31/07/96: 2 la. 5 pu. DeP. **Pd016**-04/04/96: 5 la. DeP. **Pd017**-04/04/96: 5 la. DeP. -04/04/96: 1 la. DeP. **Pd018**-16/03/96: 2 la. DeP. **Pd019**-16/03/96: 1 la. DeP. **Pe022**-26/08/92: 2 la. DeP. **Pe023**-05/11/86: 1 ♂ Ge. **Pe024**-16/09/87: 1f pu. Ge. -23/06/95: 33 la. DeP. **Pf028**-12/04/95: 3 la. 4 pu. DeP. **Pf029**-12/04/95: 7 la. DeP. -15/06/96: 17 la. DeP. **Pf030**-06/06/96: 17 la. 1 pu. DeP. **Pf031**-15/06/96: 22 la. DeP. **Pf035**-06/06/96: 1 la. DeP. **Pf036**-15/06/96: 19 la. DeP. **Pg037**-09/02/96: 3 la. DeP. **Pg038**-09/02/96: 1 la. DeP. **Pg040**-29/05/96: 19 la. DeP. **Ph042**-01/09/95: DeP. **Ph043**-01/09/95: 1 la., 1 pu. DeP. **Pj045**-12/07/96: 26 la., 8 pu. DeP. **Pk046**-29/03/96: 9 la. DeP. **Pk049**-29/03/96: 2 la. DeP. **Pk050**-29/03/96: 8 la., 2 pu. DeP. **Pk051**-29/03/96: 5 la., 2 pu. DeP. **Pm053**-24/10/86: 3 pu. Ge. **Pm054**-24/10/86: 1 ♂ Ge. **Pm055**-22/07/95: 6 la. DeP. **Pm056**-24/10/86: 1 ♀ Ge. **Pm057**-22/07/95: 2 la., 8 pu. DeP. **Pn058**-22/07/95: 1 ♂, 5 la., 6 pu. DeP. **Po059**-15/12/92: 2 la. DeP. -20/05/93: 1 la. DeP. -20/07/93: 2 la. DeP. -21/09/93: 1 pu. DeP. -17/01/94: 3 la., 1 pu. DeP. -23/06/94: 5 la. DeP. **Po060**-04/10/87: 1 ♂ Ge. **Po061**-16/07/92: 1 la. DeP. -15/12/92: 1 la., 1 pu. DeP. **Po062**-16/07/92: 2 la. DeP. -15/12/92: 1 la. DeP. -20/05/93: 1 la. DeP. -21/09/93: 4 la. DeP. -17/01/94: 10 la. DeP. -23/06/94: 4 la. DeP. **Po063**-16/07/92: 3 la. DeP. -15/12/92: 1 la. DeP. -20/07/93: 2 la., 1 pu. DeP. -23/06/94: 7 la., 2 pu. DeP. **Po064**-12/08/85: larve Gi. -15/12/92: 1 la. DeP. -20/05/93: 3 la. DeP. -20/07/93: 1 la. DeP. -23/06/94: 4 la., 1 pu. DeP. **Po065**-12/08/85: 1 la. Ge. -27/08/92: 3 ♂, 4 ♀, 3 la., 1 pu. DeP. -20/05/93: 2 la. DeP. -21/09/93: 3 la. DeP. -23/06/94: 4 la., 1 pu. DeP. **Po066**-15/12/92: 2 la. DeP. -20/05/93: 2 la. DeP. -23/06/94: 3 la., 1 pu. DeP. **Po069**-16/07/92: 3 la. 1 pu. DeP. **Po070**-16/07/92: 4 la. 1 pu. DeP. **Po071**-16/04/92: 7 la. DeP. -20/05/93: 2 la., 1 pu. DeP. -17/01/94: 1 la., 2 pu. DeP. -23/06/94: 4 la., 1 pu. DeP. **Po072**-20/05/93: 2 la., 2 pu. DeP. -23/06/94: 2 la., 1 pu. DeP. **Pp074**-22/07/95: 33 la. DeP. **Pq077**-06/07/95: 6 la. DeP. **Pq078**-06/07/95: 11 la. DeP. **Pq079**-06/07/95: 2 la. DeP. **Pq080**-04/06/91: 2 ♂, 1 ♀ Malicky, 1992 **Pr084**-06/05/95: 1 la. DeP. -06/05/95: 2 la. DeP. -07/11/95: 2 la. DeP. -13/09/96: 1 la. DeP. **Pr085**-06/05/95: 4 la. DeP. -04/08/95: 1 ♂ DeP. -07/11/95: 3 la. DeP. -26/04/96: 3 la. DeP. -12/09/96: 1 la. DeP. -12/09/96: 3 la. DeP. **Pr086**-06/05/95: 2 la. DeP. -04/08/95: 1 pu. DeP. **Pr088**-08/11/95: 4 la. DeP. **Pr089**-04/06/95: 6 la. DeP. -04/06/95: 1 la. DeP. -08/11/95: 2 la. DeP. **Pr091**-16/07/92: 2 la. DeP. -29/04/95: 7 la. DeP. -08/11/95: 1

la. DeP. -08/11/95: 1 la. DeP. -26/04/96: 5 la. DeP. **Pr092**-20/05/95: 1 la. DeP. -20/05/95: 4 la. DeP. -01/08/95: 1 la. DeP. -08/11/95: 2 la. DeP. **Pr093**-26/04/96: 7 la. DeP. **Pr094**-20/05/95: 2 la. DeP. -08/11/95: 1 la. DeP. -08/11/95: 2 la. DeP. **Pr095**-20/05/95: 19 la. DeP. **Pr096**-20/05/95: 33 la. DeP. -01/08/95: 9 la., 9 pu. DeP. -08/11/95: 10 la. DeP. -08/11/95: 4 la. DeP. -12/09/96: 1 la., 6 pu. DeP. **Pr097**-08/11/95: 1 la. DeP. -26/04/96: 3 la. DeP. -26/04/96: 1 la. DeP. -13/09/96: 4 la., 3 pu. DeP. **Pr098**-01/08/95: 10 la., 1 pu. DeP. -08/11/95: 2 la. DeP. -13/09/96: 3 la. DeP. **Pr099**-29/04/95: 13 la., 1 pu. DeP. -04/08/95: 9 pu. DeP. -07/11/95: 6 la. DeP. -07/11/95: 3 la. DeP. -25/04/96: 5 la. DeP. -12/09/96: 3 la., 12 pu. DeP. **Pr100**-23/02/93: 1 la. DeP. -25/04/96: 7 la. DeP. **Pr103**-16/07/92: 1 la., 2 pu. DeP. -29/04/95: 16 la. DeP. -04/08/95: 2 pu. DeP. -07/11/95: 3 la. DeP. -07/11/95: 10 la. DeP. -25/04/96: 7 la. DeP. **Pr104**-06/05/95: 2 pu. DeP. -07/11/95: 2 la. DeP. -12/09/96: 1 pu. DeP. **Pr105**-06/05/95: larve, 8 pu. DeP. -07/11/95: 6 la. DeP. -12/09/96: 2 la. DeP. **Pr106**-06/05/95: 12 la., 2 pu. DeP. -25/04/96: 9 la., 2 pu. DeP. **Pr107**-06/05/95: 1 la. DeP. -25/04/96: 1 la., 1 pu. DeP. **Ps108**-28/06/96: 2 la. DeP. **Ps109**-28/06/96: 21 la. DeP. **Pt111**-06/07/95: 3 la. DeP. **Pv115**-12/11/85: 1 ♀, larve Ge. **Pv116**-24/10/92: 4 la. DeP. **Pv117**-20/08/85: larve Ge. -12/11/85: larve Ge. **Pv118**-10/10/92: DeP. **Pv119**-20/07/85: 1 la. Ge. -20/08/86: 1 la. Ge. **Pw123**-12/06/85: 1 la. Ge. **Pw126**-10/10/92: 1 la. DeP. -14/04/93: 3 la. DeP. -10/04/94: 2 la. DeP. **Pw127**-08/05/96: 9 la., 1 pu. DeP. **Px128**-23/03/96: 2 la. DeP. -16/05/97: 7 la. DeP. -02/07/97: 3 la. DeP. **Px129**-23/03/96: 6 la. DeP. -02/07/97: 1 ♀ DeP. **Px130**-23/03/96: 3 la. DeP. **Px133**-28/06/92: 5 la. DeP. -03/04/93: 3 la. DeP. -25/06/93: 2 la. DeP. -04/02/94: 4 la. DeP. **Px134**-28/06/92: 7 la. DeP. -03/04/93: 2 la. DeP. -25/06/93: 1 la. DeP. -04/02/94: 7 la. DeP. -26/03/94: 1 ♂, 1 pu. DeP. **Px135**-03/04/93: 1 la. DeP. -25/06/93: 2 la. DeP. -26/03/94: 1 la. DeP. **Px136**-28/03/92: 11 la. DeP. -28/06/92: 4 la. DeP. -10/10/92: 5 la. DeP. -08/01/93: 1 la. DeP. -03/04/93: 1 la. DeP. -15/11/93: 5 la. DeP. **Px137**-28/03/92: 1 la. DeP. -03/04/93: 1 la. DeP. -25/06/93: 2 la. DeP. -15/11/93: 6 la. 1 pu. DeP. **Px140**-08/01/93: 1 la. DeP. -03/04/93: 3 la. DeP. -25/06/93: 1 la. DeP. -26/03/94: 3 la. DeP. **Px141**-28/03/92: 2 la. DeP. -28/06/92: 2 la. DeP. -10/10/92: 3 la. DeP. -10/10/92: DeP. -08/01/93: 1 la. DeP. -25/06/93: 4 la. DeP. -15/11/93: 6 la. DeP. -04/02/94: 2 la. DeP. **Px142**-25/06/93: 1 la. 1 pu. DeP. **Px143**-28/06/92: 1 la. 1 pu. DeP. **Px146**-05/06/91: 1 ♂, 2 ♀ Malicky, 1992 -14/06/91: 2 ♂, 2 ♀ Malicky, 1992 **Px147**-14/04/93: 3 la. DeP. -25/06/93: 1 la. DeP. -02/05/96: 11 la. DeP. **Px148**-14/04/93: 4 la. DeP. -25/06/93: 1 la. DeP. -02/05/96: 4 la. DeP. -02/05/96: 1 la. DeP. **Px155**-10/06/85: 1 la. Ge. **Py157**-06/04/96: 2 pu. DeP. **Pz158**-06/04/96: 4 la. 1 pu. DeP.

Appennino centro meridionale. Affine a diverse specie: *R. italica* Moretti, 1981 (Italia centrale), *R. italica ilvana* Moretti, 1981 (Isola d'Elba), *R. trifasciata* Mosely, 1930 e *R. pallida* Mosely, 1930 (Corsardinia), *R. tarda* Giudicelli, 1968 (Corsica), *R. rupta* McLachlan, 1879 (penisola Iberica e Pirenei, Gonzalez et al., 1992). Hypocrenal-epipotamal. Pupe o adulti per quasi l'intero anno. Sfarfallamento massivo in autunno-inverno. È la specie più diffusa nelle acque correnti di Basilicata, Calabria (Cianficconi et. al., 1986) e Sicilia. 0.5-1500 m s.l.m.

Rhyacophila sp.

Sa001-13/09/85: 1 la. Ge. **Sa003**-30/05/85: 3 la., pupe Ge. **Sa004**-10/10/86: 2 la. Ge.

Famiglia Glossosomatidae

Glossosoma sp.

Ea008-30/05/94: 1 pu. DeP. -06/02/96: 2 la. DeP. **Ea031**-08/06/93: 1 pu. DeP. -28/12/95: 5 la., 1 pu. DeP. **Ea032**-17/12/93: 1 la. DeP. -28/12/95: 6 la. DeP. **Ea033**-28/12/95: 3 la. DeP. **Ea037**-28/12/95: 1 la. DeP. **Ea040**-28/12/95: 1 pu. DeP.

Rinvenuta esclusivamente sui monti Nebrodi in tratti iniziali di torrenti.

Catagapetus nigrans McLachlan, 1884

Pw124-14/04/93: 3 la. DeP. **Pw125**-14/04/93: 2 la. DeP.

Appenninica. Prima segnalazione per la Sicilia. Rinvenuta in un rivolo sorgivo nel Bosco di Malabotta (tra Nebrodi e Peloritani).

Agapetus nimbulus McLachlan, 1879

Ea009-19/11/85: 1 ♂ Botosaneanu et al., 1986 **Ea050**-24/11/85: 1 ♂ Botosaneanu et al., 1986 **Ec075**-27/10/85:

larve Ge. **Ec077**-25/10/85: 1 ♂, 2 ♀ D'U. -25/05/89: 1 la. D'U. **Ec082**-09/04/61: larve, pupe Mo. **Ed084**-17/11/92: 3 la. DeP. **Ed085**-09/04/61: f.v. pu. Mo. **Ic003**-18/11/85: 1 ♂, 1 ♂ l. pu. Ch., Ci **Ic004**-06/11/87: 1 ♂ Ge. **Ic005**-06/11/92: 1 ♂ DeP. -28/09/93: 1 ♂, 2 la. DeP. **Ie009**-18/11/85: 1 ♂ larve l. pu. Ch., Ci. -01/12/86: larve Ge. **If016**-17/06/93: 1 ♂, 2 ♀ DeP. **If018**-21/01/93: 1 la. DeP. -22/04/93: 2 la. DeP. -05/10/95: 1 pu. DeP. **If021**-21/01/93: 1 la. DeP. -22/04/93: 1 la. DeP. -17/06/93: 3 ♂, 2 ♀ DeP. -10/06/94: 5 la. DeP. **Nl079**-11/04/61: 2 ♂ Mo. **Ok047**-27/09/85: 2 ♂, 1 ♀ larve Ge. -27/09/87: 2 ♂, 1 ♀ Ge. **Om056**-18/01/74: 1 ♂, 2 ♀ larve pupe Ri. **Om060**-16/01/74: 4 pu. Ri. **Pa003**-12/04/61: 14 ♂, 1 ♀ Mo. **Pa004**-18/09/78: 62 ♂, 27 ♀ Ci., Ma., Pi. **Pc015**-31/07/96: 1 la. DeP. **Pe024**-23/06/95: 1 la. DeP. **Ph042**-01/09/95: 32 la., 8 pu. DeP. **Pj045**-12/07/96: 2 la. DeP. **Pm055**-22/07/95: 9 la. DeP. **Pn058**-22/07/95: 7 la. DeP. **Po059**-15/12/92: 1 ♀ DeP. -20/07/93: 1 la. DeP. **Po061**-20/05/93: 1 la. DeP. **Po062**-21/09/93: 3 la. DeP. **Po063**-21/09/93: 6 la. DeP. **Po064**-12/08/85: 1 la. Ge.-20/07/93: 4 la. DeP. **Po065**-21/08/85: 1 la. Ge. -26/08/92: 4 ♂, 1 ♀ DeP. -21/09/93: 1 ♂, 7 la. DeP. **Po071**-21/09/93: 31 la. DeP. **Po073**-20/09/87: 1 ♂ pu Ge. **Pq079**-06/07/95: 8 la., 4 pu. DeP. **Pr092**-08/11/95: 1 la. DeP. **Pr095**-20/05/95: 1 pu. DeP. **Pr096**-20/05/95: 1 la. DeP. **Pr097**-08/11/95: 3 la. DeP. **Pr098**-13/09/96: 2 la. DeP. **Pr099**-07/11/95: 3 la. DeP. -25/04/96: 1 la. DeP. **Pr100**-12/09/96: 1 la. DeP. **Pr103**-04/08/95: 2 la. DeP. -07/11/95: 4 la. DeP. **Pr105**-06/05/95: 3 la. DeP. **Pv117**-20/08/85: 1 la. Ge. **Pw127**-08/05/96: 1 la. DeP. **Px138**-19/06/88: 1 ♀, 1 la. Ge. **Px147**-02/05/96: 1 ♂ DeP. **Px148**-02/05/96: 1 la., 4 pu. DeP. **Px155**-06/09/78: 1 ♂, 1 ♀ larve, pupe Ci., Ma., Mo., Pi. **Pz158**-06/04/96: 5 pu. DeP.

Alpi ed Appennino centro meridionale. Rhithral. Aprile-gennaio (punte massime in settembre e novembre). 0.5-810 m s.l.m.

Agapetus sp.

Ed084-27/10/86: 1 la. Ge. **If021**-01/11/86: 3 pu. Ge.-11/11/86: 1 la. Ge. **Nl081**-11/04/61: 2 la. Mo. **Ol051**-25/09/87: 1 la. Ge. **Pe024**-05/11/86: 1 la. Ge.

Famiglia Hydroptilidae

Stactobia beatensis Mosely, 1934

Om053-15/09/78: 5 ♂, 1 ♀ Mo., Pi.

Pirenei (Schmid, 1959) e Spagna (Gonzalez et al., 1992). In Italia rinvenuta, sino ad oggi, solo in Sicilia occidentale. Ambienti igropetrici.

Stactobia fuscicornis Schneider, 1845

Nl080-11/04/61: 2 ♂ Mo., Vi.

Mediterranea occidentale (Nord Africa, Spagna, Alpi occidentali, Appennino centro meridionale, Sardegna). Descritta su esemplari catturati da Zeller a Messina (McLachlan, 1874-80), disegnati da Kimmins nel 1949 (Schmid, 1959). Ambienti igropetrici.

Stactobia moselyi Kimmins, 1949

Om053-18/01/74: 1 ♂ Ri.

Centro-europea. In Italia segnalata in igropetrici di Lombardia, Friuli Venezia Giulia, Appennino centrale, Isola d'Elba. Raccolta in Sicilia occidentale una sola volta, nello stesso ambiente di *S. beatensis*.

Stactobia sp.

Pc015-17/04/96: 2 la. DeP. **Ph043**-01/09/95: 1 la. DeP. **Pn058**-22/07/95: 1 la. DeP. **Pr096**-20/05/95: 5 la. DeP. **Px130**-23/03/96: 1 la. DeP.

Orthotrichia angustella (McLachlan, 1865)

Ec068-12/09/78: 1 ♂, 2 ♀ Ci., Ma., Pi. **Ec076**-11/09/78: 11 ♂, 1 ♀ Ci., Ma., Pi. **Oi023**-16/09/78: 5 ♂, 2 ♀ Ci., Ma., Pi.

Euromaghrebina. Reperita in Italia solo occasionalmente in Lombardia (Lago Maggiore), Molise (torrente Trigno) e Sardegna (fiume Cuba).

Orthotrichia sp.
Ea050-19/11/85: larve Botosaneanu et al., 1986 **Ie014**-08/04/61: 5 la. 1 pu. Vi. **If021**-11/11/86: 2 la. 4 f.v. pu. Ge.**Nc007**-10/09/86: 1 f.v. pu. Ge.

Ithytrichia bosniaca Murgoci, Botnariuc & Botosaneanu, 1948
Ec076-11/09/78: 1 ♂ Ma. **Oi022**-20/08/68: larve, pupe Ro.
Balcani. In Italia rinvenuta solo in Sicilia.

Ithytrichia sp.
Ea050-19/11/85: larve Botosaneanu et al., 1986 **Ic003**-30/08/87: larve,f.v. pu. Ge. **If021**-11/11/86: 2 f.v. pu. Ge. **Ng050**-11/09/87: 1 ♂ Ge. **Ok047**-27/09/87: 1 f.v. pu. Ge.

Oxyethira falcata Morton, 1893
Ec078-06/11/88: larve, pupe Fe. **Ik040**-14/04/87: 1 ♂ Ge. **Ik041**-14/04/86: 1 ♂ Ge. **Oi037**-02/04/86: 1 ♂ Ge.
Europa, Isole Baleari (Malicky, 1980), Asia sud occidentale. Crenofila nell'Appennino centro meridionale e in Sardegna. In Sicilia rinvenuta anche in torrenti e nel basso corso del fiume Simeto.

Oxyethira flavicornis (Pictet, 1834)
Pa003-12/04/61: 2 ♂ Mo.
Europea. Ruscelli sorgivi debolmente correnti. In Italia segnalata in Piemonte, Lombardia ed Umbria; sui Nebrodi l'unica stazione in Sicilia.

Oxyethira unidentata McLachlan, 1884
Ea009-24/11/89: larve Fe.**Ec068**-12/09/78: 2 ♂ Ci. **Ef094**-09/06/90: 1 ♂ D'U. **Nc006**-24/06/85: larve Ge. **Ok049**-25/08/86: larve, pupe Ge. **Pa003**-12/04/61: 3 ♂ Mo. **Pa004**-12/11/85: 2 ♂ Ci., Ch. **Pa005**-17/09/85: 2 ♂ Ci., Ch. **Sb007**-26/08/85: larve Ge.
Mediterranea occidentale: Penisola Iberica, Pirenei, isole Baleari, Nord Africa. In Italia rinvenuta in acque correnti della Sila (Calabria). Primavera-autunno.

Oxyethira sp.
Eb053-21/09/86: larve Ge. **If021**-11/11/86: pupe Ge. **Ii030**-30/09/85: 2 la. Ge. **Nc006**-24/06/85: 1 la. Ge. **Oa002**-07/09/86: 1♂,2♀ pu. Ge. **Sb008**-26/08/85: 1 la. Ge.

Hydroptila angulata Mosely, 1922
Ea050-19/11/85: 11 ♂, 2 ♀ Botosaneanu et al., 1986 **Ec080**-11/09/78: 38 ♂, 9 ♀ Ma., Pi. **Oc006**-22/02/89: 7 ♂, 5 ♀ D'U., Ge. **Oi023**-16/09/78: 4 ♂, 1 ♀ Ci., Ma., Pi.
Europa, Marocco, Pakistan. Nell'Appennino ed in Sicilia in fiumi di bassa quota anche torbidi ed inquinati.

Hydroptila brissaga Malicky, 1996
Px145- 14/05/81: ♂ Malicky, 1996 - 21/5/81: ♂ Malicky, 1996 - 13/5/82: ♂ Malicky, 1996 - 13/6/82: ♂ Malicky, 1996
Descritta da Malicky su esemplari rinvenuti nel Canton Ticino, in Grecia ed in Sicilia (Peloritani).

Hydroptila giudicellorum Botosaneanu, 1980
If021-11/11/86: 5 ♂, 1 ♀ Ge.
Mediterranea occidentale: Provenza, Tunisia, Penisola Iberica, Isola di Capraia e Sardegna (Cianficconi et al., 1996). In Sicilia nota solo per una stazione degli Iblei.

Hydroptila martini Marshall, 1977
Om061-19/02/89: 1 ♂ D'U., Ge.

Sud europea. Segnalata nell'Appennino centro meridionale. Unico reperto per la Sicilia nell'area occidentale.

Hydroptila sparsa Curtis, 1834

Oi023-16/09/78: 1 ♂, larve Ma., Pi.

Paleartica. In Italia nelle acque correnti dal Piemonte alla Puglia; riscontrata anche in acque oligoaline dei canali costieri. Primo reperto per la Sicilia (area occidentale).

Hydroptila uncinata Morton, 1893

Ne031-10/06/82: 30 ♂ Malicky & Moretti, 1987 **Px130**-14/11/81: 30 ♂ Malicky & Moretti, 1987

Corsica ed Appennino centro meridionale.

Hydroptila vectis Curtis, 1834

Ea009-18/07/89: 1 la., 1 pu. Fe. **Ea050**-19/11/85: 19 ♂, 2 ♀, pupe Botosaneanu et al., 1986 **Ec068**-12/09/78: 3 ♀ Ma., Pi. **Ec080**-11/09/78: 2 ♂, 32 ♀ Ma., Pi. **Ed086**-21/11/85: 1 ♂ Botosaneanu et al.,1986 **Ie010**-22/11/85: 4 ♂, 3 ♀, larve, pupe Botosaneanu et al.,1986 **Ne017**-11/09/85: 1 la. Ge. **Ne018**-11/09/85: larve Ge. **Of011**-09/09/86: larve, ♂,♀,f.v. pu. Ge. **Of013**-09/09/86: larve, ♂,♀,f.v. pu. Ge. **Of014**-21/09/76: larve, ♀ f.v. pu. Ri. **Of015**-21/09/76: larve, ♂ f.v. pu. Ri. **Oi037**-02/04/86: 1 ♀ Ge. **Ok049**-25/08/86: 4 f.v. pu. Ge. -20/02/89: 1 ♂ D'U. **Pa003**-12/04/61: 13 ♂, 2 ♀, f.v. pupe Mo. **Pd016**-04/04/96: 2 pu. DeP. **Po065**-12/08/85: 1 ♀, 1 la. Ge. -26/08/92: 1 ♂ DeP. **Pv121**-25/08/87: ♂ f.v. pu. Ge. **Px147**-02/05/96: 1 pu. DeP. **Px151**-06/09/78: 23 ♂, 8 ♀ larve, Ci., Ma., Mo. **Px155**-25/08/87: 1 ♀, f.v. pu. Ge.

Europa, Marocco, Asia minore sino al Pakistan, Libano (Botosaneanu, 1992). Largamente diffusa nelle acque correnti d'Italia.

Hydroptila sp.

Ea012-30/05/94: 1 la. DeP. **Ec077**-25/08/87: f.v. pu. Ge. **Ic003**-30/08/87: f.v. pu. Ge. **Ic004**-10/04/93: 1 pu. DeP. **Id006**-02/10/87: larve Ge. **Nc008**-25/06/85: 2 la. Ge. **Nh052**-28/11/86: 2 la. Ge. **Oa001**-07/09/86: 1 la. Ge. **Oa002**-07/09/86: 1 la., f.v. pu. Ge. **Oc005**-29/08/85: 1 la. Ge. **Og016**-06/09/86: larve Ge. **Og017**-06/09/86: 1 la. Ge. **Oi024**-03/04/86: 1 la. Ge. **Pa001**-10/11/87: larve Ge. **Pc013**-17/04/96: 1 la. DeP. **Pd016**-04/04/96: 3 la. DeP. **Pe024**-23/06/95: 8 la. DeP. **Pf036**-15/06/96: 2 la. DeP. -15/06/96: 2 ♀ DeP. **Ph041**-01/09/95: 4 la. DeP. **Ph043**-01/09/95: 26 la. DeP. **Pk046**-29/03/96: 1 la. DeP. **Pm057**-22/07/95: 1 la. DeP. **Po059**-21/09/93: 4 la. DeP. **Po063**-21/09/93: 4 la. DeP. **Po065**-21/09/93: 5 la. DeP. **Po067**-04/10/87: 3 la., f.v. pu. Ge. **Pq078**-06/07/95: 10 la. DeP. -04/07/97: 1 ♀ DeP. **Pq079**-06/07/95: 1 pu. DeP. **Pr084**-13/09/96: 1 la. DeP. **Pr085**-07/11/95: 3 la. DeP. -26/04/96: 1 la. DeP. -12/09/96: 1 la. DeP. **Pr086**-06/05/95: 1 la. DeP. **Pr091**-26/04/96: 1 la. DeP. **Pr092**-20/05/95: 11 la. DeP. **Pr093**-26/04/96: 1 la. DeP. **Pr094**-20/05/95: 2 la. DeP. **Pr095**-20/05/95: 6 la. DeP. **Pr096**-20/05/95: 5 la. DeP. -08/11/95: 1 la. DeP. -12/09/96: 7 la., 1 pu. DeP. **Pr097**-13/09/96: 2 la. DeP. **Pr099**-07/11/95: 5 la. DeP. **Pr100**-12/09/96: 15 la., 1 pu. DeP. **Pr101**-08/11/95: 1 la. DeP. **Pr103**-04/08/95: 5 la. DeP. -07/11/95: 1 la., 10 pu. DeP. -25/04/96: 1 la. DeP. **Pr104**-12/09/96: 3 la. DeP. **Pr105**-12/09/96: 4 la. DeP. **Ps109**-28/06/96: 3 la., 1 pu. DeP. **Pt111**-06/07/95: 1 la. DeP. **Pv118**-10/10/92: 1 la. DeP. **Px130**-23/03/96: 1 la. DeP. **Px137**-15/11/93: 1 la. DeP. **Px146**-20/08/85: 1 la. Ge. **Px147**-02/05/96: 11 la. DeP. **Sb007**-26/08/85: 1 la., f.v. pu. Ge.

Agraylea sp.

Ea009-18/07/89: larve Fe. **Ea050**-19/11/85: larve Botosaneanu et al., 1986 **Ec075**-19/04/89: larve Fe. -22/09/89: larve Fe. **Ec078**-28/08/85: larve Fe. **Ec082**-09/04/61: larve, pupe Ci., Gi., Mo., Vi. **Ec083**-09/04/61: larve Mo. -22/04/89: larve, f.v. pu. Fe. -26/05/89: larve, f.v. pu. Fe. **Oc005**-29/05/85: 1 la. Ge. -29/08/85: larve Ge. **Of012**-21/09/76: f.v. pu. Ri. **Pc015**-17/04/96: 6 la. DeP. **Pd016**-04/04/96: 5 la. DeP. **Pe022**-26/08/92: 1 la. DeP. **Po063**-20/05/93: 3 la., 1 pu. DeP. **Po065**-20/05/93: 1 la., 1 pu. DeP. **Po071**-20/05/93: 1 la. DeP. **Pr096**-20/05/95: 5 la. DeP. **Pr105**-06/05/95: 4 la. DeP. **Px140**-26/03/94: 1 la. DeP.

Nella penisola italiana è presente *A. multipunctata* (Curtis, 1834); l'assenza di adulti non permette di dare un'assegnazione specifica agli esemplari raccolti in Sicilia.

Allotrichia sp.
Pd016-04/04/96: 5 pu. DeP.
Nuova segnalazione di questo genere per la Sicilia (Peloritani).

Famiglia Philopotamidae

Philopotamus montanus (Donovan, 1813)
Ig026-09/06/91: 2 ♂ Malicky, 1992
Segnalazione di Malicky per gli Iblei.
Philopotamus montanus siculus Hagen, 1860
Ea008-05/10/93: 6 la. DeP. -30/05/94: 3 ♂ DeP. -06/02/96: 3 la. DeP. **Ea019**-24/06/86: 5 ♂ Ge., Bu. **Ea024**-22/11/85: 1 ♂ Botosaneanu et al., 1986 -25/06/86: 7 ♂, 1 ♀ Ge., Bu. **Ea026**-26/06/86: 5 ♂, 1 ♀, 2 la. Ge. -26/06/86: 2 ♂, 1 ♀ Ge., Bu. **Ea029**-22/06/88: 4 ♂ D'U., Ge. **Ea030**-06/08/92: 6 ♂, 11 la. DeP. **Ea031**-05/08/92: 4 ♂, 2 ♀, 5 la. DeP. -08/06/93: 2 la., 1 pu. DeP. -12/11/93: 31 la. DeP. -17/12/93: 3 la. DeP. -02/07/94: 1 ♂, 1 la. DeP. -17/08/94: 6 la. DeP. -28/12/95: 4 la. DeP. **Ea032**-08/06/93: 2 la. DeP. -17/12/93: 1 la. DeP. -28/12/95: 4 la. DeP. **Ea033**-05/08/92: 2 ♂, 2 la. DeP. -17/04/93: 2 la. DeP. -08/06/93: 1 la., 1 pu. DeP. -12/11/93: 4 la. DeP. -17/12/93: 3 la. DeP. -28/12/95: 4 la. DeP. **Ea034**-31/05/92: 6 ♂, 2 ♀ DeP. -04/08/92: 5 ♂, 2 ♀, 7 la. DeP. -23/10/92: 17 la. DeP. -17/04/93: 1 la. DeP. -08/06/93: 4 ♂, 4 ♀, 1 la. DeP. -11/09/93: 1 ♂, 1 ♀ DeP. -12/11/93: 1 la. DeP. -17/12/93: 7 la. DeP. **Ea037**-08/06/93: 1 la. DeP. -12/11/93: 1 la. DeP. **Ea040**-17/12/93: 4 la. DeP. -02/07/94: 1 la., 1 pu. DeP. -17/08/94: 1 ♂, 3 la. DeP. -28/12/95: 20 la. DeP. **Ea044**-08/06/93: 4 ♂, 1 ♀, 2 la. DeP. -17/12/93: 2 la. DeP. -17/08/94: 2 la. DeP. **Ef093**-01/12/92: 4 la. DeP. -30/04/94: 1 la. DeP. **Ef094**-09/06/90: 3 ♂ D'U. **Ic005**-06/11/92: 1 la. DeP. -10/04/93: 1 la. DeP. -08/12/93: 2 la. DeP. **Ie009**-06/11/92: 1 la. DeP. -08/12/93: 4 la. DeP. -10/06/94: 3 la. DeP. -24/09/94: 1♂ DeP. **Ie010**-22/11/85: larve, pupe Botosaneanu et al., 1986 **If017**-22/04/93: 3 la. DeP. -17/06/93: 5 ♂, 1 la. DeP. -28/09/93: 1 la. DeP. -08/12/93: 1 la. DeP. -25/07/94: 1 la. DeP. **If018**-11/04/92: 6 ♂, 2 ♀, 6 la., 1 pu. DeP. -24/09/92: 1 ♀, 2 la. DeP. -21/01/93: 5 la., 2 pu. DeP. -22/04/93: 8 la., 1 pu. DeP. -17/06/93: 12 ♂, 3 ♀, 3 la., 1 pu. DeP. -17/08/93: 1 ♂ DeP. -28/09/93: larve DeP. -08/12/93: 6 la. DeP. -30/04/94: 1 ♂ DeP. -10/06/94: 13 la., 1 pu. DeP. -25/07/94: 3 la. DeP. -24/09/94: 2 ♂ DeP. -05/10/95: 2 ♂, 16 la. DeP. **If019**-21/01/93: 4 la., 1 pu. DeP. -22/04/93: 4 la. DeP. -08/12/93: 1 la. DeP. **If020**-21/10/87: 2 ♂ Ge. **If021**-11/11/86: 2, 15f.v. pu. Ge. 21/01/93: 2 la. DeP. -22/04/93: 1 la. DeP. -17/06/93: 2 ♀, 1 la. DeP. -28/09/93: 1 ♀, 2 la. DeP. -10/06/94: 5 la., 1 pu. DeP. -25/07/94: 4 la. DeP. **If022**-13/07/85: 10 ♂ Ge. **Ig025**-21/01/93: 3 la. DeP. -22/04/93: 2 la. DeP. -17/06/93: 1 la. DeP. **Ij034**-14/03/93: 1 la. DeP. **Nd013**-13/10/86: 2 ♂ Ge. **Nd015**-11/10/86: 2 ♂ Ge. **Ng036**-11/09/87: 2 ♂ Ge. **Ng037**-17/10/87: 2 ♂ Ge. **Ng038**-13/11/87: 3 ♂ Ge. **Ng039**-13/11/87: 5 ♂ Ge. **Ng040**-11/09/87: 1 ♂ Ge. -13/11/87: 5 ♂, 2 ♀ Ge. **Ng041**-07/11/86: 6 ♂, 1 ♀ Ge. **Ni054**-12/10/87: 1 ♂ Ge. **Ni055**-11/10/87: 1 ♂ Ge. **Nk065**-27/06/86: 1 ♂ Ge., Bu. **Nk067**-27/06/86: 1 ♂ Ge., Bu. **Nk069**-27/06/86: 2 ♂ Ge., Bu. **Nk073**-07/04/96: 8 la. DeP. **Pa005**-12/04/61: 1 ♀, larve, pupe Ci., Gi., Mo., Vi. **Pc008**-17/04/96: 8 la. DeP. **Pe022**-26/08/92: 6 la. DeP. **Pe023**-05/11/86: 2 la. Ge. **Pe024**-05/11/86: 2 la. Ge. -16/09/87: 14 ♂ Ge. -23/06/95: 8 ♂, 29 la. DeP. **Pe027**-23/06/95: 1 ♂ DeP. **Pf029**-15/06/96: 3 ♂, 10 la. DeP. **Pf030**-06/06/96: 2 la. DeP. **Pf031**-15/06/96: 11 la. DeP. **Pf032**-01/11/87: 6 ♂ Ge. **Pf035**-06/06/96: 2 ♂, 30 la. DeP. **Pf036**-15/06/96: 1 ♂, 1 ♀, 16 la. DeP. **Pg037**-09/02/96: 13 la. DeP. **Pg040**-29/05/96: 3 la. DeP. **Ph041**-01/09/95: 14 la. DeP. **Pj045**-12/07/96: 38 la. DeP. **Pk046**-29/03/96: 1 la. DeP. **Pk047**-29/03/96: 2 ♂ DeP. **Pk049**-29/03/96: 2 la. DeP. **Pm053**-24/10/86: 1 ♂ Ge. **Pm054**-24/10/86: 7 ♂ Ge. **Pm055**-22/07/95: 38 la. DeP. **Pm057**-22/07/95: 29 la. DeP. **Pn058**-22/07/95: 31 la. DeP. **Po059**-27/08/92: 3 la. DeP. -15/12/92: 2 la. DeP. -20/05/93: 1 la. DeP. -20/07/93: 2 la. DeP. -21/09/93: 5 la. DeP. -04/12/93: 1 pu. DeP. -23/06/94: 4 la. DeP. **Po061**-15/12/92: 1 la. DeP. **Po062**-16/07/92: 8 la. DeP. -20/05/93: 2 la. DeP. -21/09/93: 1 la. DeP. -23/06/94: 5 la. DeP. **Po063**-16/07/92: 2 la. DeP. -23/06/94: 3 la. DeP. **Po064**-23/06/94: 2 la. DeP. **Po066**-15/12/92: 2 la. DeP. -23/06/94: 8 la. DeP. **Po067**-12/08/85: 1 la. Ge. **Po068**-12/08/85: larve Ge. -04/10/87: 1 ♂ Ge. **Pq077**-06/07/95: 3 ♂, larve DeP. -04/07/97: 1 ♂ DeP. **Pq078**-06/07/95: 34 la. DeP. -04/07/97: 2 ♀, 1 la. DeP. **Pq079**-06/07/95: 19 la. DeP. **Pr081**-31/12/87: 2 ♂ Bu. **Pr083**-13/09/96: 2 la., 1 pu. DeP. **Pr084**-06/05/95: 2 la. DeP. -04/08/95: 1 ♂, 3 la. DeP. -07/11/95: 1 la. DeP. -13/09/96: 3 la. DeP. **Pr085**-06/05/95: 13 la. DeP. -07/11/95: 12 la. DeP. -26/04/96: 7 la. DeP. -12/09/96: 19 la. DeP. **Pr086**-06/05/95: 2 la. DeP. -04/08/95: 5 la. DeP. **Pr088**-04/06/95: 1 pu. DeP. **Pr089**-04/06/95: 1 ♂ DeP. **Pr091**-16/07/92: 6 la. DeP. -23/02/93: 1 la., 1 pu. DeP. -04/08/95: 2 la. DeP. -10/10/95: 1 ♂ DeP. -08/11/95: 1 la. DeP. -26/04/96: 3 la. DeP. **Pr092**-20/05/95:1 ♂ DeP. -01/08/95: 4 ♂, 2 ♀, 1 la. DeP. -08/11/95: 4 la. DeP. -13/09/96: 3 la. DeP. **Pr093**-

26/04/96: 8 la. DeP. **Pr094**-20/05/95: 1 ♂, 7 la. DeP. -08/11/95: 3 la. DeP. **Pr095**-20/05/95: 4 la. DeP. **Pr096**-20/05/95: 1 la. DeP. -01/08/95: 3 la. DeP. **Pr097**-08/11/95: 9 la. DeP. -26/04/96: 2 la. DeP. -13/09/96: 15 la. DeP. **Pr098**-20/05/95: 16 la. DeP. -01/08/95: 16 la. DeP. -08/11/95: 1 ♂, 12 la., 1 pu. DeP. -13/09/96: 9 la., 1 pu. DeP. **Pr104**-23/02/93: 3 la. DeP. -04/06/95: 12 ♂ DeP. -10/10/95: 2 ♂ DeP. -07/11/95: 1 la. DeP. **Pr106**-06/05/95: 1 la. DeP. **Ps108**-28/06/96: 22 la. DeP. **Ps109**-28/06/96: 11 la. DeP. **Pt111**-06/07/95: 2 la. DeP. **Pw123**-12/06/85: larve Ge. **Pw125**-12/11/85: 1 la. Ge. -21/06/88: 2 ♂ Ge. -14/04/93: 1 la. DeP. **Pw126**-10/10/92: 2 la. DeP. -14/04/93: 4 la. DeP. -10/04/94: 8 la., 2 pu. DeP. **Px128**-16/05/97: 2 la. DeP. -02/07/97: 2 la. DeP. **Px129**-23/03/96: 2 la. DeP. -02/07/97: 1 ♀ DeP. **Px133**-28/06/92: 1 ♀, 4 la. DeP. -03/04/93: 1 la. DeP. **Px133**-25/06/93: 4 la. DeP. -15/11/93: 1la. DeP. **Px136**-08/01/93: 1 la. DeP. -25/06/93: 1 ♀ DeP. **Px137**-25/06/93: 2 la. DeP. **Px140**-08/01/93: 2 la. DeP. -03/04/93: 5 la. DeP. -25/06/93:1 la. DeP. -15/11/93: 3 la. DeP. **Px147**-14/04/93: 1 la. DeP. -25/06/93: 1 ♂, 4 la. DeP. -18/05/94: 2 ♂ DeP. -02/05/96: 1 ♂, 1 ♀, 11 la. DeP. **Pz160**-02/05/97: 1 pu. DeP. **Sa003-** 03/05/74 1 ♂? Vi. **Sa004**-10/10/86: 2 la., esuvie pu. Ge.

Sud appenninica. Molto comune in torrenti e ruscelli di Basilicata, Calabria e Sicilia. Moretti riteneva di poter confermare la validità della sottospecie in base alla costante presenza di una sola spina lunga nell'endoteca del fallo, anzichè di una spina lunga e due corte come nella forma tipica. Rhithral (anche nel crenal). Adulti per l'intero anno. 15-1650 m s.l.m.

Philopotamus sp.

Ea022-13/11/85: 1 la. Ge. **Ea027**-04/09/87: 1 la. Ge. **Eg099**-11/05/85: 1 la. Ge. **If020**-02/05/85: 1 la. Ge. **Nk076**-12/11/85: 1 la. Ge.

Wormaldia mediana nielseni Moretti, 1981

Ea017-01/09/92: 1 ♂ DeP. **Ea034**-04/08/92: 4 ♂ DeP. -23/10/92: 1 ♂ DeP. **Ea037**-05/08/92: 12 ♂ DeP. **Ea050**-19/11/85: 2 ♂, 1 ♀, pupe Botosaneanu et al., 1986 -24/11/85: 15 ♂, 1 ♀ Botosaneanu et al., 1986 **Ef094**-09/06/90: 8 ♂ D'U. **Ie008**-22/05/97: 3 ♂ DeP. **Ie010**-22/11/85: 3 ♂, 2 ♀ larve, pupe Botosaneanu et al., 1986 -06/11/87: 2 ♂, 3 ♀ Ge. **If018**-11/04/92: 2 ♀ DeP. -17/06/93: 1 ♂ DeP. **If021**-17/06/93: 1 ♂ DeP. **Nd012**-15/09/94: DeP. **Ne017**-03/07/95: 2 pu. DeP. **Ne018**-26/07/69: 2 ♂, 1 ♀ Co. **Ne020**-21/06/61: 1 ♂ Ru. **Ng042**-13/11/87: 1 ♂, 3 ♀ Ge. **Ng051**-17/07/87: 2 ♂ Ge. **Nk064**-24/07/69: 1 ♂ Co. **Ok046**-15/09/78: 1 ♀ Ci., Mo., Pi. **Pe024**-23/06/95: 3 ♀ DeP. **Pe027**-23/06/95: 1 ♂, 1 ♀ DeP. **Pf030**-06/06/96: 1 ♂ DeP. **Pf031**-15/06/96: 1 ♂ DeP. **Ph042**-01/09/95: 1 ♂ DeP. **Po065**-12/08/85: 1♂ pu. Ge. -26/08/92: 25 ♂, 11 ♀ DeP. -20/07/93: 1 ♂, 1 ♀ DeP. **Po071**-20/07/93: 1 ♀ DeP. **Pr089**-04/06/95: 1 ♂, ♀ DeP. **Pr095**-20/05/95: 1 pu. DeP. **Pr104**-04/06/95 1 ♀ DeP. **Ps108**-28/06/96: 1 ♂ DeP. **Ps109**-28/06/96: 10 la. DeP. **Pw125**-21/06/88: 1 ♂ Ge. **Px136**-25/06/93: 1♀ DeP.

Sud appenninica. La specie tipica è presente nell'Appennino centro-settentrionale ed in Europa occidentale. Rhithral. Aprile-novembre. 160-1400 m s.l.m.

Wormaldia pulla marlieri Moretti, 1981

Pf030-06/06/96: 1 ♂ DeP. **Pq077**-04/07/97: 1 ♂ DeP.

Appennino tosco-romagnolo, Umbria e Calabria. Prima segnalazione per la Sicilia (Peloritani). Sostituita nelle Alpi da *W. pulla* McLachlan, 1872 (europea centro meridionale).

Wormaldia sp.

Ea009-22/05/89: larve Fe. -22/08/89: larve Fe. **Ea011**-25/05/94: 46 la. DeP. **Ea012**-30/05/94: 5 la. DeP. **Ea013**-25/05/94: 10 la. DeP. **Ea014**-25/05/94: 23 la. DeP. **Ea018**-25/05/94: 12 la. DeP.**Ea030**-06/08/92: 30 la. DeP. **Ea031**-05/08/92: 5 la. DeP. -02/07/94: 1 la. DeP. **Ea032**-05/08/92: 1 la. DeP. -02/07/94: 3 la. DeP. -17/08/94: 4 la. DeP. **Ea033**-05/08/92: 6 la. DeP. -02/07/94: 4 la. DeP. -17/08/94: 3 la. DeP. **Ea034**-04/08/92: 4 la. DeP. -12/11/93: 1 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 2 la. DeP. **Ea035**-02/07/94: 1 la. DeP. -17/08/94: 2 la. DeP. **Ea037**-13/12/88: larve Fe. -22/08/89: larve Fe. -05/08/92: 4 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 2 la. DeP. **Ea038**-01/09/92: 4 la. DeP. **Ea040**-02/07/94: 6 la. DeP. -17/08/94: 1 la. DeP. **Ea043**-02/07/94: 5 la. DeP. -17/08/94: 1 la. DeP. **Ea044**-02/07/94: 4 la. DeP. **Eb060**-17/06/85: 1 la., esuvia pu. Ge. **Ec070**-02/10/86: esuvia pu. Ge. **Ec075**-25/05/85: larve Fe. **Ef091**-01/12/92: 1 la. DeP. -30/04/94: 1 la. DeP. **Ef092**-01/12/92: 3 la. DeP. **Ef093**-01/12/92: 3 la. DeP. **Ic004**-06/11/92: 1 la. DeP. -10/04/93: 3 la. DeP. **Ic005**-06/11/92: 6 la. DeP. -10/04/93: 4 la. DeP. -17/06/93: 1 la. DeP. -28/09/93: 7 la. DeP. -

08/12/93: 2 la. DeP. -25/07/94: 2 la. DeP. **Id006**-10/04/93: 3 la. DeP. -17/06/93: 3 la. DeP. -28/09/93: 6 la. DeP. -08/12/93: 1 la. DeP. -10/06/94: 3 la. DeP. **Ie009**-28/09/93: 1 la. DeP. -25/07/94: 1 la. DeP. **If017**-22/04/93: 3 la. DeP. -17/06/93: 2 la. DeP. -28/09/93: 14 la. DeP. -08/12/93: 3 la. DeP. -25/07/94: 1 la. DeP. **If018**-21/01/93: 3 la. DeP. -22/04/93: 1 la. DeP. -08/12/93: 1 la. DeP. -10/06/94: 1 la. DeP. **If021**-22/04/93: 1 la. DeP. -28/09/93: 6 la. DeP. -10/06/94: 3 la. DeP. -25/07/94: 1 la. DeP. **If022**-13/07/85: larve Ge. **If023**-25/07/94: 1 la. DeP. **Ig025**-21/01/93: 1 la. DeP. -22/04/93: 1 la. DeP. **Ij034**-14/03/93: 1 la. DeP. **Nd012**-15/09/94: 5 la. DeP. **Ne017**-03/07/95: 27 la. DeP. **Ne028**-03/07/95: 9 la. DeP. **Ne029**-03/07/95: 10 la. DeP. **Ne032**-12/09/85: larve Ge. **Ng046**-27/11/86: 1 ♀ Ge. **Ni060**-04/11/88: 1 ♀ Ge. **Ok045**-29/04/93: 1 la. DeP. **Ok048**-29/04/93: 1 la. DeP. **Pc012**-31/07/96: 11 la. DeP. **Pc015**-31/07/96: 6 la. DeP. **Pe022**-26/08/92: 1 la. DeP. **Pf030**-06/06/96: 31 la. 2 pu. DeP. **Pf031**-15/06/96: 26 la. DeP. **Pg040**-29/05/96: 25 la. DeP. **Ph041**-01/09/95: 6 la. DeP. **Ph042**-01/09/95: 34 la. 1 pu. DeP. **Ph043**-01/09/95: 31 la. DeP. **Pj045**-12/07/96: 13 la. DeP. **Pm055**-22/07/95: 36 la. 1 pu. DeP. **Pn058**-22/07/95: 49 la. DeP. **Po059**-27/08/92: 1 la. DeP. -20/05/93: 3 la. DeP. -21/09/93: 10 la. DeP. **Po061**-20/05/93: 1 la. DeP. **Po062**-16/07/92: 1 la. DeP. -20/05/93: 1 la. DeP. **Po063**-16/07/92: 1 la. DeP. -20/05/93: 3 la. DeP. -20/07/93: 1 la. DeP. -21/09/93: 2 la. DeP. -23/06/94: 3 la. DeP. **Po064**-20/05/93: 2 la. DeP. -20/07/93: 1 la., 1 pu. DeP. -21/09/93: 2 la. DeP. -23/06/94: 6 la. DeP. **Po065**-27/08/92: 2 la. DeP. -20/05/93: 2 la. DeP. -21/09/93: 37 la. DeP. -23/06/94: 4 la. DeP. **Po066**-20/05/93: 1 la. DeP. -23/06/94: 1 la. DeP. **Po069**-16/07/92: 1 la. DeP. **Po070**-16/07/92: 2 la. DeP. **Po071**-20/05/93: 2 la. DeP. -21/09/93: 6 la. DeP. -23/06/94: 3 la. DeP. **Pq078**-06/07/95: 8 la. DeP. **Pq079**-06/07/95: 1 la. DeP. **Pr085**-07/11/95: 2 la. DeP. -12/09/96: 1 la. DeP. **Pr086**-04/08/95: 1 la. DeP. **Pr089**-04/06/95: 12 la. DeP. -08/11/95: 1 la. DeP. **Pr091**-29/04/95: 28 la. DeP. -26/04/96: 15 la. DeP. **Pr092**-20/05/95: 5 la. DeP. **Pr093**-26/04/96: 2 la. DeP. **Pr094**-20/05/95: 1 la. DeP. **Pr095**-20/05/95: 11 la. DeP. **Pr096**-20/05/95: 18 la. DeP. -01/08/95: 5 la. DeP. -12/09/96: 9 la. 1 pu. DeP. **Pr097**-13/09/96: 1 la. DeP. **Pr098**-20/05/95: 77 la. DeP. -01/08/95: 83 la. DeP. -08/11/95: 6 la. DeP. -13/09/96: 25 la. 1 pu. DeP. **Pr099**-29/04/95: 4 la. DeP. -07/11/95: 2 la. DeP. -12/09/96: 4 la. DeP. **Pr100**-12/09/96: 20 la. DeP. **Pr102**-24/09/85: larve Ge. **Pr103**-16/07/92: 3 la. DeP. -04/08/95: 24 la. DeP. -07/11/95: 3 la. DeP. -12/09/96: 10 la. DeP. **Pr104**-23/02/93: 2 la. DeP.-06/05/95: 12 la. DeP. -07/11/95: 39 la. DeP. **Pr105**-06/05/95: 6 la. DeP. -07/11/95: 2 la. DeP. **Pr106**-06/05/95: 14 la. DeP. **Ps108**-28/06/96: 1 la. DeP. **Pv116**-24/10/92: 19 la. DeP. **Pv118**-10/10/92: 1 la. DeP. **Pv119**-14/06/85: larve Ge. **Px128**-16/05/97: 1 la. DeP. **Px129**-23/03/96: 9 la. DeP. **Px130**-23/03/96: 40 la. DeP. **Px133**-28/06/92: 1 la. DeP. -25/06/93: 1 la. DeP. **Px134**-28/06/92: 3 la. DeP. -25/06/93: 2 la. DeP. **Px135**-25/06/93: 2 la. DeP. **Px136**-10/10/92: 5 la. DeP. -15/11/93: 2 la. DeP. **Px137**-25/06/93: 2 la. DeP. **Px138**-16/09/87: 1 la. Ge. **Px139**-19/06/88: 1 ♀ Ge. **Px140**-03/04/93: 1 la. DeP. -15/11/93: 1 la. DeP. -26/03/94: 5 la. DeP. **Px141**-10/10/92: 6 la. DeP. **Px148**-14/04/93: 6 la. DeP. -25/06/93: 1 la. DeP. -02/05/96: 3 la. DeP. **Px153**-20/08/85: 1 la. Ge.

Gran parte di queste segnalazioni sono probabilmente da attribuire a *W. mediana nielseni* che appare la specie più diffusa in Sicilia rispetto a *W. pulla marlieri*.

Chimarra marginata (Linnaeus, 1767)

Ic004-17/06/93: 1 ♂ DeP. **Id006**-10/04/93: 2 ♂ DeP. -28/09/93: 4 ♂, 13 la. DeP. -08/12/93: 1 la. DeP. **If021**-19/09/85: 1 ♀, larve Ge.

Europea. In corsi d'acqua di modesta portata e a quote basse di Piemonte, Lombardia, Lazio, Sardegna, Corsica. Iblei.

Famiglia Hydropsychidae

Hydropsyche dinarica Marinkovic, 1979

Ea008-05/10/93: 21 la. DeP. -30/05/94: 1 la. DeP. -17/08/94: 7 la. DeP. -06/02/96: 2 la. DeP. **Ea031**-12/11/93: 1 la. DeP. -17/12/93: 1 la. DeP. **Ea032**-08/06/93: 2 la. DeP. -11/09/93: 9 la. DeP. -12/11/93: 17 la. DeP. -17/12/93: 20 la., 2 pu. DeP. -17/08/94: 9 la. DeP. -18/10/94: 24 la. DeP. -28/12/95: 4 la. DeP. **Ea033**-05/08/92: 12 la. DeP. -17/04/93: 5 la., 2 pu. DeP. -08/06/93: 3 la., 3 pu. DeP. -11/09/93: 9 la. DeP. -12/11/93: 15 la. DeP. -17/12/93: 15 la. DeP. -23/05/94: 1 la., 2 pu. DeP. -17/08/94: 29 la. DeP. -18/10/94: 23 la. DeP. -28/12/95: 6 la. DeP. **Ea034**-31/05/92: 1 ♀, 1 la., 1 pu. DeP. -04/08/92: 11 la. DeP. -23/10/92: 15 la. DeP. -11/09/93: 6 la. DeP. -12/11/93: 9 la. DeP. -23/05/94: 1 la., 7 pu. DeP. -02/07/94: 28 la. DeP. -17/08/94: 16 la. DeP. -18/10/94: 12 la. DeP. **Ea035**-28/02/94: 1 la. DeP. -02/07/94: 10 la. DeP. -28/12/95: 8 la. DeP. **Ea036**-17/12/93: 3 la. DeP. -28/01/94: 3 la. DeP. **Ea037**-30/05/92: 2 ♂, 1 ♀ DeP. -05/08/92: 2 la. DeP. -

24/10/92: 1 la. DeP. -12/11/93: 1 la. DeP. -28/01/94: 3 la. DeP. -17/08/94: 5 la. DeP. -18/10/94: 1 la. DeP. -28/12/95: 2 la. DeP. **Ea040**-17/12/93: 2 la. DeP. -18/10/94: 1 la. DeP. **Ea043**-28/01/94: 1 la. DeP. -28/02/94: 2 la. DeP. -02/07/94: 8 la. DeP. -17/08/94: 5 la. DeP. -28/12/95: 5 la. DeP. -22/02/96: 1 la. DeP. **Ea044**-31/05/92: 1 la. DeP. -08/06/93: 9 la., 2 pu. DeP. -11/09/93: 7 la. DeP. -12/11/93: 2 la. DeP. -17/12/93: 3 la. DeP. -23/05/94: 1 la., 1 pu. DeP. -02/07/94: 1 la. DeP. -17/08/94: 2 la. DeP. -18/10/94: 16 la. DeP.
Jugoslavia, Spagna (Garcia de Jalon, 1983) ed Europa centrale (Klima, 1989; Stroot, 1986). In Italia rinvenuta in Umbria, Molise, Lazio, Basilicata, Calabria e Sicilia (Nebrodi). Aprile-giugno e dicembre. 1180-1420 m s.l.m.

Hydropsyche doehleri Tobias, 1972

Ea008-05/10/93: 40 la. DeP. -30/05/94: 20 la., 9 pu. DeP. -17/08/94: 14 la. DeP. -06/02/96: 9 la. DeP. **Ea016**-01/09/92: 8 la. DeP. **Ea017**-01/09/92: 19 la. DeP. **Ea018**-25/05/94: 1 la. DeP. **Ea030**-06/08/92: 16 la. DeP. -01/10/94: 1 la. DeP. **Ea031**-05/08/92: 10 la. DeP. -11/09/93: 26 la. DeP. -12/11/93: 23 la. DeP. -17/12/93: 3 la. DeP. -02/07/94: 6 la., 3 pu. DeP. -17/08/94: 8 la. DeP. -18/10/94: 22 la. DeP. -28/12/95: 7 la. DeP. **Ea032**-05/08/92: 7 la. DeP. -08/06/93: 12 la. DeP. -11/09/93: 7 la. DeP. -12/11/93: 3 la. DeP. -17/12/93: 6 la. DeP. -23/05/94: 2 la. DeP. -02/07/94: 5 la. DeP. -17/08/94: 1 la. DeP. -18/10/94: 1 la. DeP. -28/12/95: 4 la. DeP. **Ea033**-05/08/92: 2 la. DeP. -08/06/93: 1 la. DeP. -28/12/95: 5 la. DeP. **Ea034**-31/05/92: 2 la. DeP. -04/08/92: 17 ♂, 3 ♀ DeP. -11/09/93: 1 ♂ DeP. -23/05/94: 1 la. DeP. **Ea035**-28/01/94: 1 la. DeP. -02/07/94: 1 pu. DeP. -17/08/94: 8 la. DeP. **Ea037**-28/12/95: 1 la. DeP. **Ea039**-08/06/93: 2 la. DeP. **Ea040**-12/11/93: 4 la. DeP. -17/12/93: 2 la. DeP. -02/07/94: 8 la. DeP. -17/08/94: 5 la. DeP. -18/10/94: 10 la. DeP. -28/12/95: 2 la. DeP. **Ea044**-31/05/92: 6 la. DeP. -08/06/93: 31 la., 1 pu. DeP. -11/09/93: 7 la. DeP. -12/11/93: 7 la. DeP. -17/12/93: 7 la. DeP. -23/04/94: 6 la., 1 pu. DeP. -23/05/94: 15 la. DeP. -02/07/94: 14 la. DeP. -17/08/94: 23 la. DeP. -18/10/94: 14 la. DeP. **Ne025**-14/07/93: 1 ♀ DeP. **Ni059**-07/04/96: 1♀, 1 la. DeP. **Oh021**-17/04/71: 1 ♂, 1 ♀ Ro. **Pc008**-17/04/96: 24 la. DeP. **Pc011**-27/06/96: 32 la., 1 pu. DeP. **Pd018**-16/03/96: 1 la. DeP. **Pd020**-16/03/96: 5 la. DeP. **Pe021**-26/08/92: 2 la. DeP. **Pe022**-26/08/92: 1 la. DeP. **Pe027**-23/06/95: 18 la., 2 pu. DeP. **Pf035**-06/06/96: 8 la. DeP. **Pf036**-15/06/96: 1 la. DeP. **Pg039**-09/02/96: 7 la. DeP. -29/05/96: 1 la. DeP. **Pg040**-29/05/96: 3 la. DeP. **Pk047**-29/03/96: 9 la. DeP. **Pk050**-29/03/96: 5 la. DeP. **Pk051**-29/03/96: 7 la. DeP. **Pm057**-22/07/95: larve DeP. **Pn058**-22/07/95: 1 la. DeP. **Po059**-04/12/93: 7 la. DeP. -17/01/94: 2 la. DeP. -07/05/94: 2 la. DeP. -11/08/94: 3 la. DeP. **Po065**-26/08/92: 1 ♂ DeP. **Po066**-07/05/94: 1 pu. DeP. **Pq077**-06/07/95: 2 la. DeP. -04/07/97: 3 la. DeP. **Pq078**-06/07/95: 4 la. DeP. -04/07/97: 32 ♂, 32 ♀, 15 la. DeP. **Pq080**-09/10/90: 3 ♂ Malicky, 1992 -04/06/91: 7 ♂, 3 ♀ Malicky, 1992 **Pr083**-13/09/96: 1 la. DeP. **Pr084**-06/05/95: 8 la. DeP. -04/08/95: 3 la. DeP. -07/11/95: 1 la. DeP. -13/09/96: 22 la. DeP. **Pr085**-06/05/95: 5 la., 2 pu. DeP. -07/11/95: 2 la. DeP. -12/09/96: 19 la. DeP. **Pr086**-06/05/95: 1 la. DeP. -04/08/95: 2 la. DeP. **Pr088**-04/06/95: 1 pu. DeP. **Pr090**-24/09/85: 1 la. Ge. **Pr091**-23/02/93: 1 la. DeP. -10/10/95: 1 ♀ DeP. **Pr092**-20/05/95: 5 la., 3 pu. DeP. -08/11/95: 2 la. DeP. -13/09/96: 12 la. DeP. **Pr094**-20/05/95: 4 la. DeP. **Pr096**-11/05/93: 1 la. DeP. **Pr097**-26/04/96: 2 la. DeP. -13/09/96: 13 la. DeP. **Pr098**-20/05/95: 1 la. DeP. **Ps108**-11/05/93: 8 la., 1 pu. DeP. -23/02/94: 17 la. DeP. -27/08/94: 6 la., 2 pu. DeP. -28/06/96: 25 la. DeP. **Pw124**-14/04/93: 2 la. DeP. **Pw125**-14/04/93: 17 la. DeP. -10/04/94: 18 la. DeP. **Pw126**-14/04/93: 5 la. DeP. -10/04/94: 4 la., 1 pu. DeP. **Px128**-16/05/97: 6 la., 1 pu. DeP. **Px130**-23/03/96: 1 la. DeP. **Px133**-03/04/93: 9 la. DeP. -26/03/94: 1 pu. DeP. **Px134**-15/11/93: 1 la. DeP. -04/02/94: 1 la. DeP. **Px135**-03/04/93: 1 la. DeP. **Px137**-28/03/92: 1 la. DeP. **Px140**-08/01/93: 2 la. DeP. -03/04/93: 2 la. DeP. -25/06/93: 1 la. DeP. -26/03/94: 2 la. DeP. **Px147**-14/04/93: 1 la. DeP. -25/06/93: 3 la. DeP. -09/09/93: 2 la. DeP. -18/05/94: 1 ♂, 1 la. DeP. -02/05/96: 4 la., 2 pu. DeP. **Px149**-02/05/96: 3 la. DeP. **Sa003**-14/07/93: 18 la. 10 pu. DeP.
Appennino calabro, Sardegna e Sicilia. Tratti di origine dei corsi d'acqua. Marzo-ottobre. 50-1500 m s.l.m.

Hydropsyche gereckei Cianficconi & Moretti, 1990

Ee088-14/03/93: 26 la. DeP. **Ee089**-14/03/93: 4 la. DeP. **Ef091**-01/12/92: 34 la. DeP. -30/04/94: 17 la. DeP. **Ef092**-01/12/92: 8 la. DeP. **Ef093**-01/12/92: 12 la. DeP. -03/08/93: 15 la. DeP. -30/04/94: 17 la. DeP. **Ef094**-01/12/92: 11 la. DeP. **Ef095**-31/10/85: 1 ♂ Ge. **Ic003**-15/07/92: 2 la. DeP. -06/11/92: 6 la. DeP. **Ic004**-06/11/92: 5 la. DeP. -10/04/93: 11 la., 1 pu. DeP. -17/06/93: 3 la. DeP. **Ic005**-06/11/92: 40 la. DeP. -10/04/93: 29 la. DeP. -17/06/93: 32 la. DeP. -17/08/93: 42 la. DeP. -28/09/93: 15 la. DeP. -08/12/93: 17 la. DeP. -11/03/94: 9 la. DeP. -30/04/94: 6 la. DeP. -10/06/94: 1 la. DeP. -25/07/94: 2 la. DeP. **Id006**-10/04/93: 52 la. DeP. -17/06/93: 10 la. DeP. -17/08/93: 10 la. DeP. -28/09/93: 11 la., 1 pu. DeP. -08/12/93:

31 la. DeP. -11/03/94: 19 la. DeP. -30/04/94: 17 la. DeP. -10/06/94: 24 la. DeP. -25/07/94: 32 la., 2 pu. DeP. **Id007**-10/04/93: 17 la., 1 pu. DeP. **Ie008**-22/05/97: 1 ♂, 2 ♀, 8 la., 1 pu. DeP. **Ie009**-06/11/92: 7 la. DeP. -17/08/93: 34 la. DeP. -28/09/93: larve, 5 pu. DeP. -08/12/93: 26 la. DeP. -21/01/94: 39 la. DeP. -11/03/94: 24 la., 1 pu. DeP. -30/04/94: larve, 9 pu. DeP. -10/06/94: larve, 3 pu. DeP. -25/07/94: 1 ♂, larve, 3 pu. DeP. -24/09/94: 25 la. DeP. **If016**-05/10/95: 1 ♀ DeP. **If017**-21/01/93: 32 la. DeP. -22/04/93: larve, 4 pu. DeP. -17/06/93: larve, 2 pu. DeP. -17/08/93: 12 la. DeP. -28/09/93: 53 la., 1 pu. DeP. -08/12/93: 10 la. DeP. -11/03/94: 12 la. DeP. -10/06/94: 27 la., 1 pu. DeP. -25/07/94: 15 la. DeP. **If018**-11/04/92: 120 la., 1 pu. DeP. -24/09/92: 6 ♀, 16 la., 1 pu. DeP. -21/01/93: 50 la. DeP. -22/04/93: 47 la. DeP. -17/06/93: 2 ♀, 20 la. DeP. -17/08/93: 28 la. DeP. -28/09/93: 31 la. DeP. -08/12/93: 22 la. DeP. -21/01/94: 32 la. DeP. -11/03/94: 23 la. DeP. -30/04/94: 20 la., 1 pu. DeP. -10/06/94: 32 la., 4 pu. DeP. -25/07/94: 10 la. DeP. -24/09/94: 14 la. DeP. -05/10/95: 16 la. DeP. **If019**-21/01/93: 16 la. DeP. -22/04/93: 8 la. DeP. -08/12/93: 3 la. DeP. -21/01/94: 6 la. DeP. **If021**-11/04/92: 28 la. DeP. -21/01/93: 36 la. DeP. -22/04/93: 46 la. DeP. -17/06/93: 1 ♀, 60 la., 1 pu. DeP. -17/08/93: 1 ♀, 15 la., 2 pu. DeP. -28/09/93: 40 la., 2 pu. DeP. -08/12/93: 10 la. DeP. -21/01/94: 15 la. DeP. -11/03/94: 13 la., 1 pu. DeP. -10/06/94: 9 la., 1 pu. DeP. -25/07/94: 41 la., 8 pu. DeP. -24/09/94: 1 ♂, 50 la., 25 pu. DeP. **If023**-25/07/94: 2 la. DeP. **Ig025**-21/01/93: 45 la. DeP. -22/04/93: 44 la. DeP. -17/06/93: 44 la. DeP. -17/08/93: 18 la. DeP. -21/01/94: 9 la. DeP. **Ig026**-14/10/90: 7 ♂, 4 ♀ Malicky, 1992 -10/06/91: 2 ♂ Malicky, 1992 **Ij033**-14/03/93: 17 la. DeP. **Ij034**-14/03/93: 35 la. DeP. **Ij037**-14/03/93: 9 la. DeP. **Ij038**-14/03/93: 46 la. DeP. **Ik043**-14/03/93: 12 la. DeP.
Endemica sicula (Iblei). Rhithral. Marzo-ottobre. 50-550 m s.l.m.

Hydropsyche klefbecki Tjeder, 1946

Ea008-30/05/94: 1 la. DeP. -17/08/94: 2 la., 2 pu. DeP. **Ea011**-25/05/94: 33 la. DeP. **Ea012**-30/05/94: 14 la. DeP. **Ea013**-25/05/94: 9 la. DeP. **Ea014**-25/05/94: 22 la. DeP. **Ea015**-30/05/94: 1 la., 1 pu. DeP. **Ea018**-25/05/94: 6 la., 1 pu. DeP. **Ea032**-05/08/92: 7 la. DeP. -17/12/93: 2 la. DeP. -02/07/94: 1 la. DeP. **Ea033**-05/08/92: 6 la. DeP. -17/12/93: 1 la. DeP. -23/05/94: 7 la. DeP. -02/07/94: 4 la. DeP. -28/12/95: 3 la. DeP. **Ea034**-31/05/92: 6 la. DeP. -04/08/92: 14 ♂, 5 ♀ 1 la. DeP. -08/06/93: 1 la. DeP. -11/09/93: 1 ♂, 2 ♀ DeP. -17/12/93: 1 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 3 la. DeP. -18/10/94: 4 la. DeP. **Ea035**-02/07/94: 6 la. DeP. -28/12/95: 1 la. DeP. **Ea036**-17/12/93: 3 la. DeP. **Ea037**-30/05/92: 2 ♂, 1 ♀ DeP. -31/05/92: 3 la. DeP. -05/08/92: 11 ♂, 18 ♀, 32 la., 1 pu. DeP. -17/04/93: 1 la. DeP. -08/06/93: 22 la. DeP. -11/09/93: 1 ♀, 4 la., 1 pu. DeP. -12/11/93: 25 la. DeP. -28/01/94: 4 la. DeP. -02/07/94: 9 la. DeP. -17/08/94: 12 la., 1 pu. DeP. -18/10/94: 38 la. DeP. -28/12/95: 16 la. DeP. **Ea038**-01/09/92: 2 la. DeP. **Ea042**-23/05/94: 9 la. DeP. **Ea043**-28/02/94: 1 la. DeP. -23/04/94: 8 la. DeP. -23/05/94: 2 la. DeP. -02/07/94: 23 la. DeP. -17/08/94: 4 la., 6 pu. DeP. **Ea044**-17/08/94: 1 la., 1 pu. DeP. **Ea048**-31/08/92: 3 ♂ DeP. -16/11/92: 3 ♂ DeP. **Eg097**-11/10/90: 1 ♂ Malicky, 1992 **Ie009**-06/11/92: 12 la., 1 pu. DeP. -17/08/93: 5 la. DeP. -28/09/93: 1 pu. DeP. -30/04/94: 6 la. DeP. -24/09/94: 8 la. DeP. **If021**-17/06/93: 1 la. DeP. -25/07/94: 1 la. DeP. **Ig026**-14/10/90: 4 ♀ Malicky, 1992 -09/06/91: 4 ♂, 4 ♀ Malicky, 1992 -10/06/91: 1 ♂, 4 ♀ Malicky, 1992 **Ij034**-14/03/93: 4 la. DeP. **Ne022**-19/10/90: 3 ♂, 4 ♀ Malicky, 1992 **Ne028**-03/07/95: 12 la. DeP. **Ne029**-03/07/95: 7 la., 1 pu. DeP. **Ni059**-07/04/96: 15 la. DeP. **Ni061**-13/06/91: 1 ♂, 7 ♀ Malicky, 1992 **Nj062**-19/04/70: 2♂ pu. Ra. **Nk075**-26/06/86: 1 la. Ge. **Ok045**-29/04/93: larve DeP. **Ok048**-29/04/93: 2 la. DeP. **Pc012**-17/04/96: 9 la., 1 pu. DeP. -31/07/96: 1 la. DeP. **Pc014**-17/04/96: 7 la. DeP. **Pc015**-31/07/96: 1 la. DeP. **Pd016**-04/04/96: 5 la. DeP. **Pd017**-04/04/96: 16 la. DeP. **Pd020**-16/03/96: 1 la. DeP. **Pe022**-26/08/92: 4 la. DeP. **Pe024**-23/06/95: 76 la., 4 pu. DeP. **Pf028**-12/04/95: 7 la. DeP. **Pf029**-12/04/95: 10 la. DeP. -15/06/96: 1 la. DeP. **Pf030**-06/06/96: 1 la. DeP. **Pf036**-15/06/96: 3 la. DeP. **Pg037**-09/02/96: 2 la. DeP. **Pg038**-09/02/96: 16 la. DeP. **Pg040**-29/05/96: 17 la., 2 pu. DeP. **Ph041**-01/09/95: 18 la. DeP. **Ph042**-01/09/95: 57 la. DeP. **Ph043**-01/09/95: 5 la. DeP. **Pj045**-12/07/96: 35 la. DeP. **Pk050**-29/03/96: 4 la. DeP. **Pm055**-22/07/95: 9 la. DeP. **Pm057**-22/07/95: 1 pu. DeP. **Pn058**-22/07/95: 4 la., 1 pu. DeP. **Po059**-27/08/92: 40 la. DeP. -15/12/92: 38 la. DeP. -20/05/93: 71 la., 6 pu. DeP. -20/07/93: 34 la. DeP. -21/09/93: 37 la. DeP. -04/12/93: 16 la. DeP. -17/01/94: 33 la. DeP. -04/03/94: 4 la. DeP. -07/05/94: 2 ♂, 23 la., 5 pu. DeP. -23/06/94: 19 la., 3 pu. DeP. -11/08/94: 30 la., 2 pu. DeP. -07/10/94: 80 la., 1 pu. DeP. **Po061**-16/07/92: 16 la. DeP. -15/12/92: 13 la. DeP. -20/05/93: 1 ♂, 71 la., 2 pu. DeP. **Po062**-16/07/92: 8 la. DeP. -15/12/92: 36 la. DeP. -20/05/93: 14 la. DeP. -20/07/93: 4 la. DeP. -21/09/93: 45 la., 5 pu. DeP. -17/01/94: 7 la. DeP. -04/03/94: 2 la. DeP. -23/06/94: 1 pu. DeP. -11/08/94: 15 la. DeP. -07/10/94: 21 la., 4 pu. DeP. **Po063**-16/07/92: 9 la. DeP. -15/12/92: 23 la. DeP. -20/05/93: 6 la., 2 pu. DeP. -20/07/93: 8 la. DeP. -21/09/93: 2 la. DeP. -23/06/94: 2 la. DeP. -11/08/94: 11 la. DeP. -07/10/94: 1 la. DeP. **Po064**-15/12/92: 29 la. DeP. -20/05/93: 1 ♀, 36 la., 4 pu. DeP. -20/07/93: 1 la. DeP. -21/09/93: 1 la. DeP. -23/06/94: 5 la. DeP. -11/08/94: 41 la., 15 pu. DeP. -07/10/94: 15 la. DeP.

Po065-26/08/92: 26 ♂, 18 ♀ DeP. - 27/08/92: 17 la. DeP. -15/12/92: larve DeP. -20/05/93: 27 la., 6 pu. DeP. -21/09/93: 6 la. DeP. -23/06/94: 8 la. DeP. -11/08/94: 43 la., 4 pu. DeP. -07/10/94: 9 la. DeP. **Po066**-15/12/92: 20 la. DeP. -20/05/93: larve, 1 pu. DeP. -20/07/93: 8 la., 5 pu. DeP. -04/12/93: 42 la. DeP. -17/01/94: 48 la. DeP. -04/03/94: 29 la. DeP. -07/05/94: 4 la., 6 pu. DeP. -23/06/94: 11 la. DeP. -07/10/94: 2 la. DeP. **Po069**-16/07/92: 37 la. DeP. **Po070**-16/07/92: 26 la. DeP. -15/12/92: 9 la. DeP. **Po071**-16/04/92: 23 la. DeP. -15/12/92: 3 la. DeP. -20/05/93: 13 la., 1 pu. DeP. -20/07/93: 5 la. DeP. -21/09/93: 1 la. DeP. -04/03/94: 1 la. DeP. -23/06/94: 2 la. DeP. -11/08/94: 5 la., 14 pu. DeP. **Po072**-15/12/92: 3 la. DeP. -20/05/93: 2 la., 1 pu. DeP. -20/07/93: 14 la. DeP. -23/06/94: 14 la. DeP. -07/10/94: 2 la. DeP. **Pq077**-06/07/95: 4 la., 3 pu. DeP. **Pq078**-06/07/95: 1 ♀, 10 la. DeP. -04/07/97: 2 ♀ DeP. **Pq079**-06/07/95: 15 la., 1 pu. DeP. **Pr085**-06/05/95: 45 la., 3 pu. DeP. -04/08/95: 1 ♂, 6 ♀ DeP. -26/04/96: 1 la. DeP. **Pr086**-06/05/95: 4 la. DeP. **Pr087**-23/02/93: 32 la. DeP. **Pr089**-04/06/95: 1 la. DeP. **Pr091**-23/02/93: 2 la. DeP. -29/04/95: 4 la. DeP. -26/04/96: 1 la. DeP. **Pr092**-20/05/95: 20 la. DeP. -01/08/95: 3 la., 1 pu. DeP. **Pr093**-26/04/96: 4 la. DeP. **Pr095**-20/05/95: 30 la. DeP. **Pr096**-11/05/93: 40 la., 1 pu. DeP. -20/05/95: 32 la., 9 pu. DeP. -01/08/95: 49 la. DeP. -08/11/95: 1 la. DeP. -12/09/96: 28 la. DeP. **Pr097**-08/11/95: 3 la. DeP. -26/04/96: 18 la. DeP. -13/09/96: 2 la. DeP. **Pr098**-20/05/95: 45 la., 10 pu. DeP. -01/08/95: 15 la. DeP. -08/11/95: 6 la. DeP. -13/09/96: 12 la. DeP. **Pr099**-29/04/95: 21 la., 4 pu. DeP. - 25/04/96: 20 la. DeP. **Pr100**-23/02/93: 5 la. DeP. -25/04/96: 3 la. DeP. -12/09/96: 3 la. DeP. **Pr103**-16/07/92: 3 la. DeP. -23/02/93: 2 la. DeP. -20/07/93: 3 la. DeP. -29/04/95: 5 la., 1 pu. DeP. -04/08/95: 5 la. DeP. -07/11/95: 3 la. DeP. -25/04/96: 1 la. DeP. -12/09/96: 1 la. DeP. **Pr105**-23/02/93: 24 la. DeP. -06/05/95: 12 la., 6 pu. DeP. **Pr107**-06/05/95: 2 la., 2 pu. DeP. **Ps108**-11/05/93: 1 la. DeP. **Ps109**-11/05/93: 40 la., 1 pu. DeP. -28/06/96: 1 la. DeP. **Pt111**-06/07/95: 1 la. DeP. **Pv118**-06/05/94: 6 la. DeP. **Pw126**-10/10/92: 2 la. DeP. -14/04/93: 10 la. DeP. -09/09/93: 1 la. DeP. -10/04/94: 2 la. DeP. **Pw127**-08/05/96: 5 la., 3 pu. DeP. **Px129**-02/07/97: 1 ♀, 1 la. DeP. **Px131**-06/09/78: 3 ♂, larve, f.v. pu. Ci., Ma., Mo., Pi. **Px132**-28/06/92: 12 la. DeP. **Px133**-28/06/92: 3 la., 1 pu. DeP. -03/04/93: 2 la. DeP. -25/06/93: 2 ♂, 18 la. 4 pu. DeP. -26/03/94: 5 la. DeP. -18/05/94: 17 la., 6 pu. DeP. -23/06/94: 8 la., 12 pu. DeP. **Px134**-28/06/92: 8 la. DeP. -03/04/93: 23 la. DeP. -25/06/93: 11 la. DeP. -15/11/93: 8 la. DeP. -04/02/94: 25 la. DeP. -26/03/94: 26 la. DeP. -18/05/94: 2 ♀, 25 la., 3 pu. DeP. -23/06/94: 9 la., 6 pu. DeP. -11/08/94: 39 la., 2 pu. DeP. -07/10/94: 2 la. DeP. **Px135**-03/04/93: 7 la. DeP. -25/06/93: 1 ♀, 6 la., 3 pu. DeP. -15/11/93: 7 la. DeP. -04/02/94: 2 la. DeP. -26/03/94: 7 la., 1 pu. DeP. -18/05/94: 1 ♂, 12 la., 10 pu. DeP. -23/06/94: 1 pu. DeP. -11/08/94: 6 la. DeP. -07/10/94: 5 la. DeP. **Px136**-28/03/92: 23 la. DeP. -28/06/92: 8 la. DeP. -10/10/92: 2 la. DeP. -08/01/93: 12 la. DeP. -03/04/93: 74 la. DeP. -25/06/93: 4 ♂, larve 4 pu. DeP. -09/09/93: 1 la. DeP. -15/11/93: 18 la. DeP. -04/02/94: 9 la. DeP. -26/03/94: 24 la. DeP. -18/05/94: 18 la. 4 pu. DeP. -23/06/94: 15 la. 5 pu. DeP. -11/08/94: 4 la., 1 pu. DeP. **Px137**-03/04/93: 1 la. DeP. -25/06/93: 10 la. DeP. **Px140**-08/01/93: 4 la. DeP. -03/04/93: 29 la. DeP. -25/06/93: 24 la., 1 pu. DeP. -15/11/93: 12 la. DeP. -04/02/94: 9 la. DeP. -26/03/94: 32 la. DeP. -18/05/94: 32 la., 17 pu. DeP. -23/06/94: 5 la., 19 pu. DeP. -11/08/94: 6 la. DeP. -07/10/94: 3 la. DeP. **Px141**-28/03/92: 23 la. DeP. -28/06/92: 5 la. DeP. -10/10/92: 16 la. DeP. -08/01/93: 22 la. DeP. -03/04/93: 54 la. DeP. -25/06/93: 2 la. DeP. -09/09/93: 32 la. DeP. -15/11/93: 6 la. DeP. -04/02/94: 15 la. DeP. -26/03/94: 24 la. DeP. -18/05/94: 1 la., 14 pu. DeP. -23/06/94: 11 la. DeP. -11/08/94: 24 la. DeP. -07/10/94: 11 la. DeP. **Px142**-25/06/93: 37 la., 1 pu. DeP. **Px143**-28/06/92: 4 la. DeP. -08/01/93: 3 la. DeP. **Px144**-28/06/92: 1 la. DeP. -08/01/93: 15 la. DeP. -26/03/94: 1 la. DeP. -18/05/94: 1 pu. DeP. **Px146**-10/10/90: 3 ♂, 3 ♀ Malicky, 1992 -05/06/91: 3 ♂ Malicky, 1992 -14/06/91: 1 ♂, 7 ♀ Malicky, 1992 **Px147**-14/04/93: 26 la. DeP. -25/06/93: 37 la. DeP. -18/05/94: 21 la., 10 pu. DeP. -02/05/96: 13 la. DeP. **Px148**-14/04/93: 89 la. DeP. -25/06/93: 61 la. DeP. -02/05/96: 14 la., 3 pu. DeP. **Px150**-08/01/93: 6 la. DeP. **Px152**-06/05/94: 7 la., 1 pu. DeP. **Px154**-05/02/93: 4 la. DeP. **Py157**-06/04/96: 2 la. DeP. **Sa003**-14/07/93: 1 la. DeP.
Appennino centro meridionale. Rhithral. Marzo-novembre. 0.5-1730 m s.l.m.

Hydropsyche modesta Navas, 1925

Eb060 -17/06/85: larve Ge. **Eb064** -09/04/61: 1 ♂, 7 ♀, 7 la. Mo. -17/06/85: 1 la. Ge. **Eb067** -19/06/85: 3 la. Ge. -18/02/93: 23 la. DeP. **Ec068** -10/04/61: 2 ♂, 1 ♀ Mo. -12/09/78: 1 ♂, 3 ♀ Ma., Pi. **Ec076**-17/11/92: 1 la. DeP. **Ec077**-25/10/85: 2 la. Ge. **Ec078**-18/02/89: larve Fe. -24/07/89: larve Fe. -26/11/89: larve Fe. -22/09/92: 32 la. DeP. -10/08/93: 31 la. DeP. **Ec079**-22/09/92: 17 la. DeP. **Ec080**-11/09/78: 26 ♂, 1 ♀ Ci., Ma., Pi. **Ec081**-22/09/92: 19 la. DeP. -03/11/92: 6 ♂, 13 ♀, larve DeP. -12/06/93: 4 ♂, 1 ♀, larve, 1 pu. DeP. -17/05/94: 41 la., 1 pu. DeP. -18/06/94: 9 la. DeP. -07/09/94: 29 la., 25 pu. DeP. **Ec082**-09/04/61: 4 ♂ Ci., Gi., Mo., Vi. **Ec083**-09/04/61: larve Mo. **Nc006**-24/06/85: 2 la. Ge. **Nc008**-25/06/85: larve Ge. **Nc009**-26/06/85: 1 la. Ge. **Nc011**-26/06/85: 1 la. Ge. **Oa002**-07/09/86: 1 la. Ge. **Ob003**-01/09/85: larve Ge. **Of013**-

30/05/77: 2 la. Ri. **Of014**-21/09/76: larve Ri. **Og019**-06/09/86: 1 ♂, 1 esuvia Ge. **Oi023**-30/09/85: 1 la. Ge. **Oi024**-16/09/78: 22 ♂, 2 ♀ Ci., Mo., Pi. **Oi026**-20/08/68: 4 ♂, 1 ♀ Ro **Om057**-22/04/95: 1 pu. DeP. **Om060**-26/01/74: 1 la. Ri.

Sud europea anatolica. Specie euriecia, tollerante inquinamento e degradi fluviali. Hyporhithral e potamal. Aprile-novembre. 12-560 m s.l.m.

Hydropsyche morettii De Pietro, 1996

Ea011-25/05/94: 2 la. DeP. **Ea012**-30/05/94: 2 la. DeP. **Ea014**-25/05/94: 1 pu. DeP. **Ea015**-30/05/94: 12 la., 1 pu. DeP. **Ea037**-13/12/88: larve Fe. -05/08/92: 1 ♂, 2 ♀ 2 la. DeP. -11/09/93: 2 la. DeP. **Ea038**-01/09/92: larve DeP. -24/10/92: 44 la. DeP. -17/11/92: 31 la. DeP. -08/06/93: 18 la. 2 pu. DeP. -02/07/94: 8 la. DeP. **Ea043**-23/04/94: 1 la. DeP. **Ea050**-23/11/85: 2 ♂, 5 ♀ Ci., Ch. **Ea052**-02/08/92: 2 la. DeP. -17/11/92: larve DeP. -27/05/93: 41 la. DeP. **Eb067**-18/02/93: 5 la. DeP. **Ec070**-02/10/86: 1 la. Ge. **Ec071**-03/08/93: 2 la. DeP. **Ec073**-11/01/93: 2 la. DeP. **Ec074**-15/12/88: larve Fe. -17/03/89: larve Fe. -21/06/89: larve Fe. -24/11/89: larve Fe. **Ec075**-27/10/85: 2 la. Ge. -14/01/89: larve Fe. -19/04/89: larve Fe. -11/07/89: larve Fe. -25/11/89: larve Fe. -17/11/92: larve, 5 pu. DeP. -27/05/93: 13 la., 5 pu. DeP. **Ec076**-16/02/89: larve Fe. -25/05/89: larve Fe. -25/11/89: larve Fe. -17/11/92: larve DeP. **Ec078**-18/02/89: larve Fe. -24/07/89: larve Fe. -26/11/89: larve Fe. -22/09/92: 4 la. DeP. -10/08/93: larve DeP. **Ec081**-12/06/93: 8 la., 2 pu. DeP. -17/05/94: 2 la. DeP. -18/06/94: 2 pu. DeP. **Ec082**-09/04/61: 1 ♂ Ci., Gi., Mo., Vi. **Ec083**-09/04/61: larve Ci., Gi., Mo., Vi. -18/02/89: larve, pupe Fe. -26/05/89: larve, pupe Fe. **Ef091**-01/12/92: 1 la. DeP. **Ef095**-31/10/85: 1 la. Ge. -31/10/85: 1 la. Ge. **Ic003**-06/11/92: 2 la. DeP. **Ic005**-17/06/93: 1 la. DeP. -17/08/93: 1 la. DeP. **Id006**-10/04/93: 2 la. DeP. **Ie008**-22/05/97: 1 ♂, 6 la. DeP. **Ie009**-06/11/92: 19 la. DeP. -17/08/93: 2 la. DeP. -28/09/93: 46 la. DeP. -08/12/93: 7 la. DeP. -21/01/94: 10 la. DeP. -11/03/94: 5 la. DeP. -30/04/94: 2 la., 3 pu. DeP. -10/06/94: 39 la. DeP. -25/07/94: larve, 7 pu. DeP. -24/09/94: 36 la., 5 pu. DeP. **Ie011**-06/11/92: 1 ♀, 43 la. DeP. **Ij033**-14/03/93: 8 la. DeP. **Ij034**-14/03/93: 27 la. DeP. **Ij037**-14/03/93: 48 la. DeP. **Ij038**-14/03/93: 2 la. DeP. **Nd012**-15/09/94: 28 la. DeP. **Ne028**-14/09/85: 1♂ pu. Ge. -03/07/95: 23 la., 1 pu. DeP. **Ne030**-02/03/75: 1 la. Ri. **Ne032**-12/09/85: larve Ge. **Ni059**-07/04/96: 6 la., 1 pu. DeP. **Nj062**-19/05/70: larve, pupe Ra. **Nk075**-26/06/86: 1 la. Ge., Bu. **Od007**-02/09/85: 1 la. Ge. -02/09/85: larve Ge. **Of011**-09/09/76: 3 la. Ri **Of013**-09/09/76: larve, 2 pu. Ri. -30/05/77: larve Ri. **Of015**-21/09/76: 5 la. Ri. **Og016**-06/09/86: 1 la. Ge. **Og019**-06/09/86: 1 ♀, 1f pu. Ge. **Oi029**-02/04/86: 2 ♂ Ge. -02/04/86: 2 ♂, 2 ♀ 1 esuvia Ge. **Ok045**-29/04/93: 16 la. DeP. **Ok046**-15/09/78: 3 ♂, ♀ Ci. **Ok048**-29/04/93: larve DeP. **Ok050**-29/04/93: 7 la. DeP. **Om054**-05/01/74: 1 la. Ri. **Om055**-22/04/95: 35 la., 2 pu. DeP. **Om056**-17/09/89: larve Ri. **Om060**-17/09/74: 1 la. Ri. **Pa003**-12/04/61: 3 ♂ Ci., Gi., Mo.,Vi. **Pa004**-18/09/78: 13 ♂ Ci., Mo.,Pi. **Pc012**-17/04/96: 1 la. DeP. -31/07/96: 3 la. DeP. **Pc014**-17/04/96: 5 la. DeP. **Pc015**-31/07/96: 20 la., 1 pu. DeP. **Pd017**-04/04/96: 7 la. DeP. **Pe024**-23/06/95: 3 la. DeP. **Pf028**-12/04/95: 5 la., 3 pu. DeP. **Pf030**-06/06/96: 17 la. DeP. **Pf031**-15/06/96: 9 la. DeP. **Pg038**-09/02/96: 3 la. DeP. **Ph041**-01/09/95: 3 la. DeP. **Ph042**-01/09/95: 37 la. DeP. **Po059**-27/08/92: 1 la. DeP. -15/12/92: 1 la. DeP. -20/07/93: 1 la. DeP. -21/09/93: 4 la., 1 pu. DeP. -17/01/94: 1 la. DeP. -07/05/94: 1 la. DeP. -23/06/94: 1 la. DeP. -07/10/94: 1 la. DeP. **Po061**-15/12/92: 1 la. DeP. **Po062**-20/07/93: 4 la. DeP. -21/09/93: 9 la. DeP. -11/08/94: 1 la. DeP. **Po063**-15/12/92: 20 la. DeP. -20/05/93: 1 ♂ DeP. -20/07/93: 3 la., 1 pu. DeP. -21/09/93: 10 la. DeP. **Po064**-15/12/92: 1 la. DeP. -20/07/93: 15 la. DeP. -21/09/93: 2 la. DeP. -11/08/94: 6 la. DeP. -07/10/94: 2 la. DeP. **Po065**-26/08/92: 2 ♂ DeP. -27/08/92: 3 la. DeP. -15/12/92: 4 la. DeP. -20/05/93: 1 la. DeP. -20/07/93: 11 la. DeP. -21/09/93: 24 la. DeP. -11/08/94: 3 la. DeP. -07/10/94: 3 la. DeP. **Po066**-15/12/92: 6 la. DeP. -04/12/93: 5 la. DeP. -17/01/94: 3 la. DeP. -04/03/94: 1 la. DeP. -23/06/94: 2 la. DeP. **Po069**-16/07/92: 1 la. DeP. **Po070**-16/07/92: 1 la. DeP. -15/12/92: 17 la. DeP. **Po071**-16/04/92: 1 la. DeP. -15/12/92: 11 la. DeP. -20/07/93: 35 la., 2 pu. DeP. -21/09/93: 14 la., 8 pu. DeP. -17/01/94: 1 la. DeP. -11/08/94: 18 la., 2 pu. DeP. -07/10/94: 23 la., 5 pu. DeP. **Po072**-15/12/92: 39 la. DeP. -20/07/93: 28 la., 8 pu. DeP. -23/06/94: 4 la., 4 pu. DeP. **Pq079**-06/07/95: 2 la. DeP. **Pr087**-23/02/93: 3 la. DeP. **Pr090**-24/09/85: larve Ge. **Pr096**-01/08/95: 3 la. DeP. **Pr099**-12/09/96: 2 la. DeP. **Pr100**-23/02/93: 1 la. DeP. **Pr103**-16/07/92: 8 la. DeP. -23/02/93: 4 la. DeP. -20/07/93: 3 la. DeP. -04/08/95: 4 la. DeP.-07/11/95: 2 la. DeP. -25/04/96: 1 pu. DeP. -12/09/96: 6 la. DeP. **Pr105**-23/02/93: 6 la. DeP. -07/11/95: 1 la. DeP. **Pv116**-14/06/85: 1 la. Ge. -24/10/92: 7 la. DeP. **Pv118**-10/10/92: 6 la. DeP. **Pv119**-14/06/61: 1 ♀ Ru. **Pw123**-12/06/85: 1♂ pu. Ge. **Pw126**-10/10/92: 1 la. DeP. -14/04/93: 1 la. DeP. -09/09/93: 4 la. DeP. **Pw127**-08/05/96: 3 la. DeP. **Px131**-08/10/67: 3 ♂ Ci., Gi., Pi. **Px132**-28/06/92: 39 la. DeP. -10/10/92: 4 la. DeP. **Px134**-28/06/92: 2 la. DeP. -15/11/93: 2 la. DeP. -23/06/94: 1 la. DeP. -11/08/94: 1 la. DeP. **Px135**-03/04/93: 2 la. DeP. -15/11/93: 1 la. DeP. -23/06/94: 2 la. DeP. -07/10/94: 1 la. DeP. **Px136**-28/03/92: 8 la. DeP. -28/06/92: 11 la. DeP. -10/10/92: 4 la. DeP. - 08/01/93:

4 la. DeP. -03/04/93: 10 la. DeP. -25/06/93: 1 ♂, 3 la. DeP. -09/09/93: 2 la. DeP. -15/11/93: 3 la. DeP. -26/03/94: 1 la. DeP. -23/06/94: 2 la. DeP. **Px140**-08/01/93: 4 la. DeP. -03/04/93: 5 la. DeP. -25/06/93: 7 la. DeP. -09/09/93: 1 la. DeP. -15/11/93: 3 la. DeP. -23/06/94: 3 la. DeP. **Px141**-28/03/92: 3 la. DeP. -28/06/92: 31 la., 1 pu. DeP. -10/10/92: 7 la. DeP. -08/01/93: 19 la. DeP. -03/04/93: 2 la. DeP. -25/06/93: 21 la., 1 pu. DeP. -09/09/93: 9 la., 2 pu. DeP. -15/11/93: 10 la. DeP. -04/02/94: 3 la. DeP. -26/03/94: 3 la. DeP. -18/05/94: 1 la., 1 pu. DeP. -23/06/94: 3 la., 2 pu. DeP. -11/08/94: 8 la. DeP. **Px142**-28/06/92: 8 la. DeP. -25/06/93: 5 la. DeP. **Px143**-28/06/92: 13 la. DeP. -08/01/93: 7 la. DeP. **Px144**-28/06/92: 1 ♂, 3 la. DeP. -08/01/93: 20 la. DeP. -25/06/93: 31 la., 5 pu. DeP. -15/11/93: 29 la. DeP. -04/02/94: 1 la. DeP. -18/05/94: 9 la. DeP. -11/08/94: 1 la., 1 pu. DeP. **Px148**-14/04/93: 1 la. DeP. **Px150**-08/01/93: 2 la. DeP. **Px153**-28/06/92: 17 la. DeP. **Px154**-05/02/93: 17 la. DeP. **Px156**-16/07/92: 2 la. DeP. -05/02/93: 3 la. DeP.

Appennino centro meridionale. Da hypocrenal al potamal. Febbraio-novembre. 0.5-1285 m s.l.m.

Hydropsyche spiritoi Moretti, 1991

Ea002-14/01/94: 6 la. DeP. **Ea005**-06/02/96: 1 la. DeP. **Ea008**-30/05/94: 1 la. DeP. **Ea011**-25/05/94: 1 ♀, 1 pu. DeP. **Ea013**-25/05/94: 1 pu. DeP. **Ea018**-25/05/94: 2 la. DeP. **Ea032**-23/05/94: 1 la. DeP. -18/10/94: 1 la. DeP. **Ea033**-12/11/93: 1 la. DeP. -17/12/93: 1 la. DeP. -23/05/94: 1 la. DeP. -17/08/94: 4 la. DeP. -18/10/94: 1 la. DeP. **Ea034**-31/05/92: 4 la. DeP. -04/08/92: 20 ♂, 2 ♀ DeP. -23/10/92: 5 la. DeP. -17/04/93: 4 la. DeP. -08/06/93: 5 la. DeP. -11/09/93: 1 ♂, ♀, 1 la. DeP. -12/11/93: 6 la. DeP. -17/12/93: 9 la. DeP. -23/05/94: 4 la. DeP. -17/08/94: 3 la. DeP. -18/10/94: 23 la. DeP. **Ea035**-28/01/94: 1 la. DeP. -28/02/94: 1 la. DeP. -23/04/94: 1 la. DeP. -28/12/95: 2 la. DeP. **Ea036**-17/12/93: 15 la. DeP. **Ea037**-05/08/92: 2 ♂, 1 ♀, 6 la. DeP. -24/10/92: 17 la. DeP. -17/04/93: 10 la. DeP. -08/06/93: 1 pu. DeP. -11/09/93: 41 la. DeP. -12/11/93: larve DeP. -17/12/93: 23 la. DeP. -28/01/94: 3 la. DeP. -12/03/94: 1 la. DeP. -17/08/94: 31 la. DeP. -18/10/94: 45 la. DeP. -28/12/95: 9 la. DeP. **Ea040**-17/08/94: 1 la. DeP. **Ea041**-23/05/94: 4 la., 13 pu. DeP. **Ea042**-23/05/94: 3 ♀, 31 la. DeP. **Ea043**-28/01/94: 5 la. DeP. -28/02/94: 6 la. DeP. -23/04/94: 19 la., 2 pu. DeP. -23/05/94: 7 la., 1 pu. DeP. -17/08/94: 10 la. DeP. -28/12/95: 5 la. DeP. -22/02/96: 4 la. DeP. **Ea047**-17/12/93: 28 la. DeP. -12/03/94: 10 la. DeP. **Eb055**-18/02/93: 38 la. DeP. **Eb057**-18/02/93: 1 la. DeP. **Ec071**-03/08/93: 7 la. DeP. **Ec072**-11/01/93: 4 la. DeP. **Na002**-22/04/95: 1 la. DeP. **Ne017**-03/07/95: 7 la. DeP. **Ne021**-04/05/97: 2 la. DeP. **Ne028**-03/07/95: 6 la. DeP. **Ne029**-03/07/95: 9 la. DeP. **Nk074**-07/04/96: 4 la. DeP. **Ok048**-29/04/93: 1 la. DeP. **Om055**-22/04/95: 1 la. DeP. **Pc012**-17/04/96: 13 la., 5 pu. DeP. -31/07/96: 6 la. DeP. **Pc013**-17/04/96: 9 la., 2 pu. DeP. **Pc014**-17/04/96: 7 la., 2 pu. DeP. **Pc015**-17/04/96: 5 la., 2 pu. DeP. -31/07/96: 14 la. DeP. **Pd016**-04/04/96: 1 la. DeP. **Pd017**-04/04/96: 2 la. DeP. **Pd020**-16/03/96: 1 la. DeP. **Pe022**-26/08/92: 1 la. DeP. **Pf029**-15/06/96: 3 la. DeP. **Pf031**-15/06/96: 6 la. DeP. **Pf036**-15/06/96: 1 la. DeP. **Pg037**-09/02/96: 6 la. DeP. **Pg038**-09/02/96: 7 la. DeP. **Pg040**-29/05/96: 2 la. DeP. **Ph041**-01/09/95: 14 la. DeP. **Ph042**-01/09/95: 24 la. DeP. **Ph043**-01/09/95: 53 la., 3 pu. DeP. **Pj045**-12/07/96: 31 la. DeP. **Pk046**-29/03/96: 3 la. DeP. **Pk050**-29/03/96: 4 la., 2 pu. DeP. **Pm055**-22/07/95: 46 la. DeP. **Pm057**-22/07/95: 2 la. DeP. **Pn058**-22/07/95: larve DeP. **Po059**-27/08/92: 7 la. DeP. -15/12/92: 3 la. DeP. -20/05/93: 1 la. DeP. -20/07/93: 3 la. DeP. -21/09/93: 10 la. DeP. -04/12/93: 3 la. DeP. -04/03/94: 1 la. DeP. -07/05/94: 1 la. DeP. -23/06/94: 5 la. DeP. -11/08/94: 8 la. DeP. -07/10/94: 7 la. DeP. **Po061**-16/07/92: 4 la. DeP. -15/12/92: 4 la. DeP. -20/05/93: 4 la. DeP. **Po062**-16/07/92: 14 la. DeP. -15/12/92: 19 la. DeP. -20/05/93: 1 la. DeP. -20/07/93: 30 la. DeP. -21/09/93: 25 la., 1 pu. DeP. -17/01/94: 1 la. DeP. -04/03/94: 1 la. DeP. -23/06/94: 5 la. DeP. -11/08/94: 3 la., 4 pu. DeP. -07/10/94: 7 la., 2 pu. DeP. **Po063**-16/07/92: 13 la. DeP. -15/12/92: 28 la. DeP. -20/05/93: 2 la. DeP. -20/07/93: 6 la. DeP. -21/09/93: 5 la. DeP. -23/06/94: 5 la. DeP. -11/08/94: 2 la. DeP. **Po064**-15/12/92: 12 la. DeP. -20/05/93: 1 la. DeP. -20/07/93: 1 la. DeP. -21/09/93: 1 la. DeP. -23/06/94: 1 la. DeP. -11/08/94: 3 la. DeP. -07/10/94: 8 la. DeP. **Po065**-26/08/92: 3 ♂, 1 ♀ DeP. -27/08/92: 39 la. DeP. -15/12/92: larve DeP. -20/05/93: 3 la. DeP. -20/07/93: 6 la. DeP. -21/09/93: 15 la. DeP. -23/06/94: 1 la. DeP. -11/08/94: 11 la., 2 pu. DeP. -07/10/94: 10 la. DeP. **Po066**-15/12/92: 12 la. DeP. -20/05/93: 2 la. DeP. -20/07/93: 1 la. DeP. -04/12/93: 6 la. DeP. -17/01/94: 4 la. DeP. -04/03/94: 3 la. DeP. -07/05/94: 1 pu. DeP. -23/06/94: 22 la. DeP. -07/10/94: 4 la. DeP. **Po069**-16/07/92: 1 ♀, 6 la., 1 pu. DeP. **Po070**-16/07/92: 7 la. DeP. -15/12/92: 11 la. DeP. **Po071**-16/04/92: 12 la. DeP. -20/05/93: 3 la. DeP. -20/07/93: 5 la. DeP. -21/09/93: 6 la., 14 pu. DeP. -23/06/94: 2 pu. DeP. -11/08/94: 38 la., 6 pu. DeP. -07/10/94: 2 la. DeP. **Po072**-15/12/92: 1 la. DeP. -20/05/93: 2 la. DeP. -20/07/93: 7 la. DeP. -23/06/94: 9 la., 3 pu. DeP. **Pq077**-06/07/95: 6 la. DeP. **Pq078**-04/07/97: 1 ♀ DeP. **Pq079**-06/07/95: 21 la. DeP. **Pr084**-04/08/95: 6 la. DeP. -13/09/96: 2 la. DeP. **Pr085**-06/05/95: 2 la., 2 pu. DeP. -07/11/95: 1 la. DeP. -26/04/96: 3 la. DeP. -12/09/96: 10 la. DeP. **Pr086**-06/05/95: 6 la. DeP. -04/08/95: 9 la. DeP. **Pr087**-23/02/93: 8 la. DeP. **Pr091**-16/07/92: 5 la. DeP. -

23/02/93: 6 la. DeP. -04/08/95: 1 la. DeP. -10/10/95: 1 ♂ DeP. -08/11/95: 1 la. DeP. **Pr092**-01/08/95: 8 la. DeP. **Pr093**-26/04/96: 1 la. DeP. **Pr096**-01/08/95: 6 la. DeP. -12/09/96: 1 la. DeP. **Pr097**-08/11/95: 3 la. DeP. -26/04/96: 2 la. DeP. -13/09/96: 2 la. DeP. **Pr098**-20/05/95: 2 la. DeP. -01/08/95: 8 la. DeP. -13/09/96: 5 la. DeP. **Pr099**-04/08/95: 1 la. DeP. -07/11/95: 13 la. DeP. -12/09/96: 19 la. DeP. **Pr100**-23/02/93: 2 la. DeP. -25/04/96: 1 la. DeP. -12/09/96: 75 la. DeP. **Pr101**-08/11/95: 1 la. DeP. **Pr103**-16/07/92: 8 la. DeP. -23/02/93: 11 la. DeP. -20/07/93: 6 la. DeP. -29/04/95: 9 la., 1 pu. DeP. -04/08/95: 9 la. DeP. -07/11/95: 26 la. DeP. -25/04/96: 4 la., 1 pu. DeP. -12/09/96: 25 la., 1 pu. DeP. **Pr104**-23/02/93: 23 la. DeP. -06/05/95: 19 la. DeP. -04/06/95: 3 la. DeP. -07/11/95: 2 la. DeP. **Pr105**-23/02/93: 5 la. DeP. -06/05/95: 2 la., 1 pu. DeP. -07/11/95: 5 la., 2 pu. DeP. -12/09/96: 1 la. DeP. **Pr106**-06/05/95: 1 la. DeP. **Ps108**-27/08/94: 1 la. DeP. -11/05/93: 8 la. DeP. -28/06/96: 34 la. DeP. **Pt110**-06/07/95: 3 la., 1 pu. DeP. **Pt111**-06/07/95: 71 la., 1 pu. DeP. **Pv116**-24/10/92: 1 la. DeP. **Pv118**-10/10/92: 1 la. DeP. -06/05/94: 1 pu. DeP. **Pw126**-10/10/92: 5 la. DeP. -14/04/93: 14 la. DeP. -09/09/93: 2 la. DeP. **Px128**-16/05/97: 1 ♂ DeP. **Px130**-23/03/96: 5 la. DeP. **Px132**-28/06/92: 2 la. DeP. **Px133**-28/06/92: 1 la. DeP. -03/04/93: 6 la. DeP. -25/06/93: 2 la. DeP. -18/05/94: 1 la., 1 pu. DeP. -23/06/94: 2 la. DeP. **Px134**-28/06/92: 5 la. DeP. -03/04/93: 18 la. DeP. -25/06/93: 2 la. DeP. -15/11/93: 3 la. DeP. -04/02/94: 5 la. DeP. -26/03/94: 2 la. DeP. -18/05/94: 1 la., 1 pu. DeP. -23/06/94: 5 la. DeP. -11/08/94: 9 la. DeP. **Px135**-03/04/93: 12 la. DeP. -15/11/93: 7 la. DeP. -04/02/94: 6 la. DeP. -26/03/94: 2 la. DeP. -23/06/94: 13 la. DeP. -11/08/94: 9 la. DeP. -07/10/94: 1 la. DeP. **Px136**-28/03/92: 7 la. DeP. -28/06/92: 3 la. DeP. -10/10/92: 6 la. DeP. -08/01/93: 4 la. DeP. -03/04/93: 12 la. DeP. -25/06/93: 3 la. DeP. -09/09/93: 6 la. DeP. -26/03/94: 3 la. DeP. -11/08/94: 1 pu. DeP. **Px137**-28/03/92: 2 la. DeP. -03/04/93: 1 la. DeP. -25/06/93: 1 ♀ DeP. **Px140**-08/01/93: 8 la. DeP. -03/04/93: 10 la. DeP. -25/06/93: 6 la. DeP. -15/11/93: 18 la. DeP. -04/02/94: 1 la. DeP. -26/03/94: 1 la. DeP. -23/06/94: 12 la. DeP. -11/08/94: 11 la. DeP. -07/10/94: 1 la. DeP. **Px141**-28/03/92: 1 la. DeP. -28/06/92: 6 la. DeP. -10/10/92: 3 la. DeP. -08/01/93: 2 la. DeP. -03/04/93: 4 la. DeP. -25/06/93: 3 la. DeP. -09/09/93: 4 la. DeP. -15/11/93: 1 la. DeP. -26/03/94: 1 la., 1 pu. DeP. -23/06/94: 4 la. DeP. -07/10/94: 1 la. DeP. **Px143**-08/01/93: 1 la. DeP. **Px147**-25/06/93: 1 la. DeP. **Px148**-25/06/93: 2 la. DeP. **Sa003**-14/07/93: 11 la., 2 pu. DeP.

Descritta da Moretti su esemplari raccolti in Umbria, è stata successivamente riscontrata in Lombardia e nell'Appennino centro meridionale, dalla Toscana alla Puglia. Hypocrenal-epipotamal. Marzo-novembre. 20-1410 m s.l.m.

Hydropsyche sp.

Ea009-12/12/88: larve Fe. -16/03/89: larve Fe. -19/06/89: larve Fe. -21/10/89: larve Fe. **Ea017**-01/09/92: 2 la. DeP. **Ea030**-06/08/92: 1 la. DeP. **Ea031**-11/09/93: 5 la. DeP. -12/11/93: 5 la. DeP. -02/07/94: 1 la. DeP. -18/10/94: 2 la. DeP. **Ea032**-08/06/93: 1 pu. DeP. -17/12/93: 1 la. DeP. -23/05/94: 3 la. DeP. -17/08/94: 1 la. DeP. **Ea033**-17/04/93: 1 pu. DeP. -08/06/93: 2 la., 1 pu. DeP. -12/11/93: 10 la. DeP. -17/12/93: 6 la. DeP. -23/05/94: 1 la. DeP. -18/10/94: 1 la. DeP. **Ea034**-04/08/92: 1 la. DeP. -08/06/93: 3 la. DeP. -11/09/93: 1 la. DeP. -17/12/93: 1 la. DeP. -23/05/94: 4 la. DeP. -02/07/94: 3 la. DeP. -18/10/94: 2 la. DeP. **Ea035**-02/07/94: 6 la. DeP. -17/08/94: 2 la. DeP. **Ea036**-17/12/93: 9 la. DeP. -28/01/94: 3 la. DeP. **Ea037**-11/09/93: 1 pu. DeP. -12/11/93: 6 la. DeP. -17/12/93: 9 la. DeP. -12/03/94: 1 la. DeP. -02/07/94: 5 la. DeP. -17/08/94: 3 la. DeP. -18/10/94: 6 la. DeP. **Ea038**-01/09/92: 1 la. DeP. -24/10/92: 1 la. DeP. -17/11/92: 1 la. DeP. **Ea040**-17/12/93: 1 la. DeP. -28/12/95: 1 la. DeP. **Ea043**-02/07/94: 4 la. DeP. -17/08/94: 1 la. DeP. **Eb054**-20/04/86: 1 la. Ge. **Eb059**-17/06/85: 1 la. Ge. **Eb060**-17/06/85: 1 la. Ge. **Eb063**-26/11/85: 1 la., 1 esuviaGe. **Eb067**-18/02/93: 1 pu. DeP. **Ec073**-11/01/93: 3 la. DeP. **Ec077**-25/08/87: 1 esuviaGe. **Ec081**-17/05/94: 2 la. DeP. **Ic005**-06/11/92: 3 la. DeP. -28/09/93: 1 pu. DeP. **Id006**-17/06/93: 3 la. DeP. -25/07/94: 1 pu. DeP. **Ie009**-06/11/92: 6 la. DeP. -17/08/93: 1 la. DeP. -28/09/93: 3 pu. DeP. -08/12/93: 3 la. DeP. -10/06/94: 17 la. DeP. -25/07/94: 10 la. DeP. -24/09/94: 9 la., 1 pu. DeP. **If019**-08/12/93: 2 la. DeP. **Ij031**-17/04/86: 1 la. Ge. -17/04/86: 1 la. Ge. **Ik043**-13/04/86: 1 la. Ge. **Nc008**-25/06/85: 2 la. Ge. **Nc009**-25/06/85: 1 la. Ge. **Nc010**-25/06/85: 1 ♀, 1 la. Ge. **Ne018**-11/09/85: larve Ge. **Ne029**-03/07/95: 2 la. DeP. **Nf034**-27/11/85: 2 la. Ge. **Ng039**-13/11/87: 1 la. Ge. **Ng040**-11/09/87: 1 ♀ Ge. -11/09/87: 1 ♀ Ge.**Ng047**-10/09/87: 1. pu. Ge. **Oc005**-29/08/85: 1 la. Ge. **Oi022**-03/04/86: 1 la., 1 esuvia Ge. **Oi025**-03/04/86: 1 la. Ge. **Oi027**-03/04/86: 1 la. Ge. **Oi028**-02/04/86: 1 la. Ge. **Oi031**-31/03/86: 1 la. Ge. **Oi032**-31/03/86: larve Ge. **Oi041**-28/03/86: 1 la. Ge. **Om052**-08/11/85: 1 la. Ge. **Pc012**-17/04/96: 2 la. DeP. **Pe022**-26/08/92: 1 la. DeP. **Pe023**-05/11/86: 3 la. Ge. **Pe024**-05/11/86: 3 la., 1. pu. Ge. -23/06/95: larve DeP. **Pf035**-29/06/88: 1 esuviaGe. **Pg040**-29/05/96: larve DeP. **Ph041**-01/09/95: larve DeP. **Ph042**-01/09/95: 24 la. DeP. **Ph043**-01/09/95: 3 la. DeP. **Pj045**-12/07/96: larve DeP. **Pk050**-29/03/96: 1 la. DeP. **Pk051**-29/03/96: 1 pu. DeP. **Pm055**-22/07/95: larve DeP. **Pn058**-22/07/95: larve DeP. **Po059**-27/08/92: 5 la. DeP. -15/12/92: 5

la. DeP. -20/07/93: 1 la. DeP. -21/09/93: 33 la. DeP. -04/12/93: 45 la. DeP. -17/01/94: 20 la. DeP. -04/03/94: 3 la. DeP. -07/05/94: 1 pu. DeP. -23/06/94: 6 la. DeP. -11/08/94: 19 la. DeP. -07/10/94: 21 la. DeP. **Po061**-16/07/92: 5 la. DeP. **Po062**-16/07/92: 5 la. DeP. -15/12/92: 2 la. DeP. -20/07/93: 1 pu. DeP. -21/09/93: 26 la. DeP. -04/12/93: 1 la. DeP. -07/10/94: 2 la. DeP. **Po063**-15/12/92: 2 la. DeP. -20/07/93: 1 la., 1 pu. DeP. -23/06/94: 1 la. DeP. -11/08/94: 1 la. DeP. -07/10/94: 2 la. DeP. **Po064**-12/08/85: 1 la. Ge. -15/12/92: 1 la. DeP. -20/07/93: 1 la. DeP. -21/09/93: 3 la. DeP. -23/06/94: 2 la. DeP.-11/08/94: 1 la. DeP. -07/10/94: 1 la. DeP. **Po065**-12/06/85: 1 la. Ge. -04/10/87: 9 la. Ge.-27/08/92: 2 la. DeP. -15/12/92: 9 la. DeP. -21/09/93: 16 la. DeP. -04/03/94: 2 la. DeP. -23/06/94: 5 la. DeP. -07/10/94: 3 la. DeP. **Po066**-20/05/93: 1 pu. DeP. -20/07/93: 2 pu. DeP. -04/12/93: 3 la. DeP. -23/06/94: 4 la. DeP. -07/10/94: 1 la. DeP. **Po069**-16/07/92: 3 la. DeP. **Po070**-12/06/85: 1 esuviaGe. **Po071**-16/04/92: 4 la. DeP. -20/05/93: 1 pu. DeP. -21/09/93: 3 la. DeP. -11/08/94: 1 la., 2 pu. DeP. **Po072**-20/07/93: 1 pu. DeP. **Pq077**-06/07/95: larve DeP. **Pq078**-06/07/95: 36 la. DeP. **Pq079**-06/07/95: larve DeP. **Pr084**-04/08/95: 4 la. DeP. **Pr085**-04/08/95: 1 la. DeP. -07/11/95: 1 la. DeP. -26/04/96: 1 la. DeP. -12/09/96: 8 la. DeP. **Pr086**-04/08/95: 2 la. DeP. -07/11/95: 2 la. DeP. **Pr087**-23/02/93: 2 la. DeP. **Pr088**-08/11/95: 1 la. DeP. **Pr090**-24/09/85: larve Ge. **Pr091**-04/08/95: 1 la. DeP. **Pr092**-01/08/95: 22 la. DeP. -08/11/95: 2 la. DeP. **Pr096**-01/08/95: 41 la. DeP. -08/11/95: 60 la. DeP. -12/09/96: 63 la. DeP. **Pr097**-08/11/95: 15 la. DeP. -26/04/96: 2 la. DeP. -13/09/96: larve DeP. **Pr098**-01/08/95: larve DeP. -08/11/95: 9 la. DeP. **Pr099**-07/11/95: 16 la. DeP. **Pr101**-08/11/95: 2 la. DeP. **Pr102**-24/09/85: larve Ge. **Pr103**-16/07/92: 1 la. DeP. -20/07/93: 16 la. DeP. -04/08/95: 7 la. DeP. -07/11/95: 9 la. DeP. **Pr104**-23/02/93: 3 la. DeP. -07/11/95: 1 la. DeP. -12/09/96: 2 la. DeP. **Pr105**-23/02/93: 2 la. DeP. **Ps109**-28/06/96: 7 la. DeP. **Pv114**-12/11/85: 1 la. Ge. **Pv115**-12/11/85: 2 la. Ge. **Pw125**-12/06/85: 1 la. Ge. -21/06/88: 1 ♀ Ge. -14/04/93: 7 la. DeP. **Px133**-04/02/94: 5 la. DeP. -26/03/94: 2 la. DeP. **Px134**-15/11/93: 10 la. DeP. -04/02/94: 5 la. DeP. -23/06/94: 12 la. DeP. -11/08/94: 6 la. DeP. **Px135**-25/06/93: 1 pu. DeP. -26/03/94: 2 la. DeP. -23/06/94: 1 la. DeP. -07/10/94: 2 la. DeP. **Px136**-28/03/92: 3 la. DeP. -15/11/93: 15 la. DeP. -26/03/94: 1 la. DeP. -23/06/94: 1 la. DeP. -11/08/94: 1 la. DeP. **Px137**-15/11/93: 8 la. DeP. **Px138**-19/06/88: 1 esuvia Ge. **Px140**-04/02/94: 3 la. DeP. -26/03/94: 2 la. DeP. -18/05/94: 1 pu. DeP. -23/06/94: 1 la., 1 pu. DeP. -11/08/94: 1 la. DeP. -07/10/94: 1 la. DeP. **Px141**-28/06/92: 3 la. DeP. -04/02/94: 10 la. DeP. -07/10/94: 10 la. DeP. **Px147**-25/06/93: 2 pu. DeP. **Px148**-14/04/93: 1 la. DeP. **Px153**-20/08/85: 2 la. Ge. **Px155**-10/06/85: 1 la. Ge. **Sa004**-10/10/86: 1 la. Ge. **Sb008**-26/08/85: 1 la. Ge.

Cheumatopsyche lepida (Pictet, 1834)

Ea009-12/12/88: larve Fe. **Ea038**-01/09/92: 26 la. DeP. -17/11/92: 2 la. DeP. -08/06/93: 1 la. DeP. -23/04/94: 2 la. DeP. **Ea050**-11/09/78: 23 ♂, 9 ♀ Ma., Pi.-15/03/89: larve Fe. -19/04/89: larve Fe. -20/06/89: larve Fe. -20/10/89: larve Fe. **Ec074**-15/12/88: larve Fe. **Ec075**-19/04/89: larve Fe. -11/07/89: larve Fe. -17/11/92: 6 la. DeP. **Ec078**-02/04/89: larve Fe. **Ec083**-09/04/61: larve Ci., Gi., Mo., Vi. **Oi024**-16/09/78: 2 ♂ Ci., Mo., Pi. **Oi026**-20/08/68: 7 ♂, 2 ♀ Ro. -15/08/70: 1 ♀, larve Ro. **Ok047**-27/09/87: 3 ♂ Ge. **Ok050**-29/04/93: 1 la. DeP. **Pa004**-18/09/78: 1 ♂, ♀ Ci., Mo., Pi. **Po067**-04/10/87: 1 ♂, ♀ Ge.

Europea, con estensione ad Iran, Anatolia, Cipro, Libano, Israele. Euriecia di acque correnti, è diffusa in tutta Italia, in acque correnti di bassa e media quota. Hyporhithral. 12-800 m s.l.m.

Famiglia Polycentropodidae

Plectrocnemia alicatai De Pietro, 1998

Ea034-04/08/92: 2 ♂ DeP. **Nk073**-07/04/96: 1 la. DeP.

Specie descritta per la Sicilia (Nebrodi), è stata rinvenuta anche nell'Appennino centro meridionale (Cianficconi, dati non pubblicati).

Plectrocnemia geniculata McLachlan, 1871

Ig026-09/06/91: 2 ♂ Malicky, 1992

Europa centrale e meridionale. Rinvenuta da Malicky in una stazione degli Iblei.

Plectrocnemia geniculata factiosa Moretti, 1991

Ea020-01/09/92: DeP. **Ea034**-04/08/92: 1 ♂, 1 ♀, 3 la. DeP. -11/09/93: 1 ♂ DeP. **Ed084**-17/11/92: 1 la. DeP. **Eg096**-16/06/96: 2 la. DeP. **Ic003**-15/07/92: 3 la. DeP. **Id006**-28/09/93: 1 ♀, 1 la. DeP. **If016**-

05/10/95: 1 ♂, 3 ♀, 1 la., 5 pu. DeP. **If018**-24/09/92: 1 ♂ DeP. -28/09/93: 1 la. DeP. -05/10/95: 1 ♂ DeP. **Ng041**-07/11/86: 6 ♂, 1 ♀, larve Ge. **Pa005**-12/04/61: 1 ♂ Gi. **Pc013**-17/04/96: 1 la. DeP. **Pe025**-23/06/95: 1 ♂, 8 la., 4 pu. DeP. **Pf035**-06/06/96: 2 la. DeP. **Ph043**-01/09/95: 2 la. DeP. **Pk046**-29/03/96: 1 la. DeP. **Pk048**-29/03/96: 3 la., 1 pu. DeP. **Po059**-17/01/94: 1 la. DeP. **Pq078**-04/07/97: 5 ♂, 1 ♀ DeP. **Pr082**-04/08/95: 2 la. DeP. **Pr088**-04/06/95: 5 la. DeP. -13/09/96: 1 la. DeP. **Pr089**-04/06/95: 2 pu. DeP. **Pr091**-29/04/95: 2 la. DeP. -04/08/95: 1 la. DeP. -26/04/96: 1 la. DeP. **Pr094**-13/09/96: 1 pu. DeP. **Pr104**-06/05/95: 1 la. DeP. **Px128**-16/05/97: 1 ♂ DeP. -02/07/97: 2 la., 1 pu. DeP. **Px129**-02/07/97: 4 ♂, 1 ♀, 1 la. DeP. **Px137**-28/03/92: 1 pu. DeP.

Endemica sicula. *Plectrocnemia geniculata* presenta nel versante tirrenico un interessante processo di sottospeciazione endemica: *P. g. calabrica* Malicky, 1971 (Basilicata, Calabria); *P. g. corsicana* Mosely, 1930 (Sardegna, Corsica, Appennino centro settentrionale); *P. g. factiosa* (Sicilia); *P. g. almoravida* Malicky, 1986 (sud est penisola Iberica). Le sottospecie differiscono da *P. geniculata geniculata* McLachlan, 1871 per alcuni caratteri dei genitali dei maschi (paraprocto, denticolazioni del bordo distale delle appendici intermedie). Crenal e primi tratti del rhithral. Marzo-novembre. 3-1350 m s.l.m.

Plectrocnemia sp.

Ea021-13/11/85: 2 la. Ge. **Ea022**-13/11/85: 1 la. Ge. **Ea024**-20/11/85: larve Botosaneanu et al., 1986 **Ea027**-20/11/85: 2 la. Ge. -23/06/86: 2 pu. Ge., Bu. **Ea033**-05/08/92: 1 la. DeP. **Ea034**-17/04/93: 1 la. DeP. **Ea040**-28/12/95: 1 la. DeP. **Ea044**-08/06/93: 1 la. DeP. **Ed085**-09/04/61: larve Ci.,Gi., Mo., Vi. -26/10/85: 1 la. Ge. **Ef095**-31/10/85: 1 la. Ge. **Ie010**-30/08/87: larve Ge. **If021**-11/11/86: 2 la. Ge.**Ne021**-04/05/97: 3 la. DeP. **Ne026**-10/09/85: larve Ge. **Nf034**-27/11/85: 1 la. Ge. **Nk076**-12/11/85: 1 la. Ge. **Pe026**-23/06/95: 1 la. DeP. **Pr090**-24/09/85: larve Ge. **Pw122**-25/03/86: 1 la. Ge. **Pw125**-12/06/85: 1 la. Ge.

Polycentropus divergens Mosely, 1930

Ea011-25/05/94: 5 la., 1 pu. DeP. **Ea012**-30/05/94: 2 la. DeP. **Ea013**-25/05/94: 1 la. DeP. **Ic005**-08/12/93: 1 la. DeP. **Ne017**-03/07/95: 1 la. DeP. **Ne029**-03/07/95: 1 la. DeP. **Ok048**-29/04/93: 1 la. DeP. **Pe024**-23/06/95: 1 pu. DeP. **Pf030**-06/06/96: 2 la. DeP. **Pf031**-15/06/96: 1 ♂, 1 la., 1 pu. DeP. **Pj045**-12/07/96: 1 la. DeP. **Pm055**-22/07/95: 1 la. DeP. **Pn058**-22/07/95: 1 la. DeP. **Po059**-27/08/92: 1 la. DeP. -21/09/93: 3 la. DeP. -23/06/94: 2 la. DeP. **Po063**-15/12/92: 1 la. DeP. -20/05/93: 1 la. DeP. **Po064**-20/07/93: 1 la. DeP. **Po065**-26/08/92: 1 ♂ DeP. **Po069**-16/07/92: 1 la. DeP. **Pq078**-06/07/95: 5 la. DeP. -04/07/97: 4 ♂, 1 ♀ DeP. **Pq079**-06/07/95: 3 pu. DeP. **Pq080**-04/06/91: 1 ♂ Malicky, 1992. **Pr084**-06/05/95: 1 la. DeP. -04/08/95: 1 la. DeP. **Pr089**-04/06/95: 2 la. DeP. **Pr091**-04/08/95: 2 la. DeP. **Pr092**-20/05/95: 6 la., 1 pu. DeP. -08/11/95: 1 la. DeP. **Pr093**-26/04/96: 1 la. DeP. **Pr094**-20/05/95: 1 la. DeP. **Pr095**-20/05/95: 1 la. DeP. **Pr096**-01/08/95: 1 la. DeP. -08/11/95: 1 la. DeP. -12/09/96: 1 la. DeP. **Pr100**-25/04/96: 1 la. DeP. **Px133**-28/06/92: 1 la. DeP. **Px136**-08/01/93: 1 la. DeP. **Px140**-08/01/93: 1 la. DeP. **Px141**-25/06/93: 1 la. DeP.

Corsica, Sardegna e Sicilia (Malicky, 1992). Rhithral. Maggio-agosto. 100-1000 m s.l.m.

Polycentropus francavillensis Malicky, 1981

Px145-21/05/81: 1 ♂ Malicky, 1992

Endemica sicula. Descritta da Malicky su un esemplare dei Peloritani.

Polycentropus malickyi Moretti, 1981

Ea011-25/05/94: 9 la. DeP. **Ea012**-30/05/94: 2 la. DeP. **Ea013**-25/05/94: 2 la. DeP. **Ea014**-25/05/94: 1 la. DeP. **Ea018**-25/05/94: 10 la. DeP. **Ea033**-02/07/94: 1 la. DeP. **Ea034**-04/08/92: 3 ♂, 2 ♀, 1 la. DeP. -11/09/93: 3 ♀ DeP. -02/07/94: 1 la. DeP. **Ea035**-02/07/94: 4 la. DeP. **Ea037**-05/08/92: 3 ♂, 1 ♀ DeP. -08/06/93: 1 la. DeP. -02/07/94: 3 la. DeP. **Pe024**-23/06/95: 1 pu. DeP. **Pf031**-15/06/96: 1 pu. DeP. **Po062**-17/01/94: 1 la. DeP. **Pq077**-06/07/95: 1 la. DeP. **Pq078**-06/07/95: 6 la. DeP. -04/07/97: 11 ♂, 1 ♀ DeP. **Pr084**-13/09/96: 1 la. DeP. **Pr085**-04/08/95: 1 la. DeP. **Pr091**-04/08/95: 8 la. DeP. -08/11/95: 1 la. DeP. **Pr092**-20/05/95: 3 la. DeP. **Pr096**-20/05/95: 1 la. DeP. -12/09/96: 2 la. DeP. **Pr098**-20/05/95: 1 la. DeP. -13/09/96: 2 la. DeP. **Ps108**-28/06/96: 1 pu. DeP. **Px134**-28/06/92: 1 la. DeP. **Px136**-25/06/93: 1 ♂ DeP.

Appennino centro meridionale (dalla Toscana alla Calabria). Rhithral. Adulti o pupe da giugno a settembre. 400-1360 m s.l.m.

Polycentropus mortoni Mosely, 1930

Ea006-06/02/96: 8 la. DeP. **Ea009**-19/06/89: larve Fe. -22/11/89: larve Fe. **Ea014**-25/05/94: 1 la. DeP. **Ea034**-04/08/92: 2 ♂ DeP. -17/04/93: 1 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 1 la. DeP. **Ea037**-20/06/89: larve Fe. -23/09/89: larve Fe. -05/08/92: 2 ♂, ♀ DeP. -24/10/92: 1 la. DeP. -08/06/93: 2 la. DeP. **Ea038**-01/09/92: 3 la. DeP. -17/11/92: 1 la. DeP. **Ea042**-23/05/94: 1 la. DeP. **Ea052**-17/11/92: 4 la. DeP. **Eb060**- 17/06/85: larve Ge. **Ec074**-08/11/88: larve Fe. **Ec075**-25/05/89: larve Fe. -22/09/89: larve Fe. -17/11/92: 2 la. DeP. **Ec076**-25/05/89: larve Fe. -23/10/89: larve Fe. **Ec078**-24/07/89: larve Fe. **Ef093**-01/12/92: 1 la. DeP. **Ef094**-09/06/90: 3 ♂ D'U. **Ic003**-18/11/85: 3 ♂ Ch., Ci. -15/07/92: 5 la. DeP. **Ic005**-06/11/92: 3 la., 1 pu. DeP. -28/09/93: 1 la. DeP. **Id006**-28/09/93: 1 la. DeP. **Ie008**-22/05/97: 2 ♂, 1 la., 1 pu. DeP. **Ie009**-28/09/93: 41 la., 1 pu. DeP. -30/04/94: 3 la. DeP. -25/07/94: 3 la. DeP. **Ie010**-22/11/85: 7 ♂, 3 ♀, larve, pupe Botosaneanu et al., 1986 **Ie013**-10/05/85: 1 ♂ Ge. -18/11/85: 2 la. Ch., Ci. **Ie014**-08/04/61: 1 ♂, 1 ♀ Ci., Gi., Mo., Vi. -17/11/85: 1 ♂ Ch., Ci. **If016**-05/10/95: 6 ♂, 3 ♀ DeP. **If017**-21/01/93: 1 la. DeP. -28/09/93: 1 la. DeP. **If018**-21/01/93: 1 la. DeP. -28/09/93: 1 la. DeP. -08/12/93: 1 la. DeP. -05/10/95: 1 ♂ DeP. **If020**-29/09/85: larve Ge. **Ig026**-09/06/91: 3 ♂ Malicky, 1992 **Ij034**-14/03/93: 2 la. DeP. **Ne017**-03/07/95: 2 la. DeP. **Ne026**-19/06/85: larve Ge. **Ne028**-14/09/85: larve Ge. -03/07/95: 1 pu. DeP. **Ne029**-03/07/95: 1 la. DeP. **Ob003**-01/09/85: larve Ge. **Oc005**-29/08/85: larve Ge. **Oe008**-02/09/85: larve Ge. -15/10/85: 1 la. Ge. **Of011**-09/09/76: larve, pupe Ri. **Of013**-30/05/77: larve Ri. **Of014**-02/06/77: larve Ri. **Oh020**-18/08/70: larve, pupe Fa. **Oi034**-16/09/78: 1 ♂ Ci., Mo., Pi. **Oi037**-02/04/86: 1 ♂ Ge. **Oi039**-02/04/86: 1 ♂ Ge. **Ok046**-15/09/78: 1 ♂ Ci., Mo., Pi. **Ok049**-22/08/86: 2 la. Ge. **Om054**-25/11/75: 1 la. Ri. **Pa004**-17/11/85: 1 ♂ Ch., Ci. **Pc013**-17/04/96: 1 pu. DeP. **Pc015**-31/07/96: 4 la., 1 pu. DeP. **Pe024**-16/09/87: 1 ♂ Ge. -23/06/95: 1 la. DeP. **Pf031**-15/06/96: 1 ♂ pu. DeP. **Ph041**-01/09/95: 7 la. DeP. **Ph042**-01/09/95: 2 la. DeP. **Ph043**-01/09/95: 1 la. DeP. **Pm057**-22/07/95: 6 la. DeP. **Po059**-21/09/93: 4 la. DeP. **Po060**-21/05/59: 1 ♀ Ru. **Po062**-21/09/93: 1 la. DeP. **Po063**-21/09/93: 1 la. DeP. **Po071**-21/09/93: 1 la. DeP. **Pq077**-06/07/95: 1 la. DeP. **Pq079**-06/07/95: 3 la. DeP. **Pr090**-24/09/85: larve Ge. **Pr095**-20/05/95: 1 la. DeP. **Pr096**-01/08/95: 9 la. DeP. -08/11/95: 1 la. DeP. -12/09/96: 1 la. DeP. **Pr097**-13/09/96: 1 la. DeP. **Pr098**-01/08/95: 1 la. DeP. -13/09/96: 1 la. DeP. **Pr099**-12/09/96: 2 la. DeP. **Pr100**-12/09/96: 11 la. DeP. **Pr103**-04/08/95: 3 la. DeP. -12/09/96: 1 la. DeP. **Pr104**-06/05/95: 2 la. DeP. -07/11/95: 1 la. DeP. -12/09/96: 1 la. DeP. **Pr105**-07/11/95: 1 la. DeP. **Pv116**-24/10/92: 1 la. DeP. **Pv117**-20/08/85: larve Ge. **Pv119**-14/06/85: larve Ge. **Px129**-16/05/97: 2 la. DeP. -02/07/97: 3 ♂, 3 ♀ DeP. **Px131**-08/10/67: 6 ♂ Ci., Gi., PI. -25/09/85: larve Ge. **Px132**-10/10/92: 1 la. DeP. **Px136**-25/06/93: 1 ♂ DeP. -15/11/93: 1 la. DeP. **Px137**-28/03/92: 2 la. DeP. **Px147**-02/05/96: 1 la. DeP. **Px148**-25/06/93: 1 la. DeP. -02/05/96: 1 la. DeP. **Pz159**-01/11/96: 1 ♂ DeP.

Tirrenica (dalla Toscana alla Calabria, Corsardinia). Hypocrenal-epipotamal. Aprile-novembre. 0-1350 m s.l.m.

Polycentropus sp.

Oi036-11/09/86: 1 la. Ge. **Pe024**-23/06/95: 3 la. DeP. **Pm057**-22/07/95: 7 la. DeP. **Pq077**-06/07/95: 5 la. DeP. **Pr085**-06/05/95: 1 la. DeP. -04/08/95: 1 la. DeP. **Pr086**-06/05/95: 1la. DeP. **Pr088**-08/11/95: 1 la. DeP. **Pr091**-08/11/95: 1 la. DeP. **Pr092**-01/08/95: 3 la. DeP. -08/11/95: 2 la. DeP. **Pr096**-01/08/95: 1la. DeP. **Pr098**-01/08/95: 3 la. DeP. **Px147**-02/05/96: 1 la. DeP.

Famiglia Psychomyidae

Lype phaeopa meridionalis Moretti, 1991

Ef094-09/05/90: 4 ♂ D'U. -09/06/90: 4 ♂ D'U. **Ie013**-18/11/85: 4 ♂, 2 ♂, 1 f. pu. Ch., Ci. **Ie014**-08/04/61: 2 ♂ Ci., Gi., Mo., Vi. -18/11/85: 1 ♂ Ch., Ci. **If018**-11/04/92: 1 ♂ DeP. -28/09/93: 1 ♂ DeP. **If021**-20/04/85: 2 ♂, 1 la. Ge. -22/04/93: 1 la. DeP. **Ii029**-20/04/85: 1 ♂, 1 la. Ge. **Ik044**-10/05/90: 1 ♂ D'U. **Ng041**-07/11/86: 2 ♂ Ge. **Ng051**-17/10/87: 1 ♂ Ge. **Oe008**-15/10/85: 1 ♂, 1 la. Ge. **Ok044**-27/09/87: 1 ♂, 3 ♀ Ge. **Pa003**-12/04/61: 1 ♂, larve Mo. -17/11/85: 1 ♂, 1 la. Ch., Ci. **Pf032**-01/11/87: 1 ♂ Ge. **Pf035**-06/06/96: 1 ♂ DeP. **Pr085**-12/09/96: 1 la. DeP. **Pr090**-24/09/85: 1 ♂, larve Ge. **Pr104**-04/06/95: 3 ♂ DeP. **Pw125**-21/06/88: 5 ♂ Ge. **Pz159**-01/11/96: 2 ♂ DeP.

Appennino centro meridionale. Rhithral e hypocrenal. 0-1200 m s.l.m.

Lype reducta (Hagen, 1868)
Ie010-22/11/85: 4 ♂ Botosaneanu et al., 1986
Europa, Israele, Libano, Anatolia, Marocco. Segnalata per l'Appennino e la Sardegna. In Sicilia nota attualmente solo per una stazione degli Iblei.

Tinodes locuples McLachlan, 1878
Ea019-25/06/86: 2 ♂, 1 ♀ Ge. **Ie010**-20/10/87: 1 ♂, 1 ♀ Ge. -06/11/87: 8 ♂, 4 ♀ Ge. **Ne024**-26/07/59: 1 ♀ Co. **Ok044**-27/09/87: 1 ♂ Ge. **Ok047**-27/09/87: 2 ♂, 1 ♀ Ge. **Om053**-15/09/78: 1 ♂ Ci., Gi., Mo., Vi. **Pg039**-29/05/96: 1 ♂ DeP. **Pm054**-20/09/87: 1 ♀ Ge. **Pp076**-02/06/59: 1 ♀ Ru. **Pq078**-04/07/97: 2 ♂, 2 ♀ DeP. **Pu112**-06/04/61: 3 ♂, 2 ♀ Ci., Mo., Vi.
Endemica sicula. Descritta da McLachlan su esemplari raccolti da Mann. Ambienti sorgentizi. 200-1550 m s.l.m.

Tinodes maclachlani Kimmins, 1966
Ea006-06/02/96: 1 ♂, 1 ♀, 7 la., 2 pu. DeP. **Ea034**-04/08/92: 1 ♂ DeP. **Ed085**-09/04/61: 13 ♂, 1 ♀ Ci. Gi., Mo., Vi. **Ed086**-21/11/85: 2 ♂, 3 ♀ Ch., Ci. **Ia001**-15/05/61: 6 ♀ Con. **Ie010**-22/11/85: 4 ♂ Ch., Ci. **Ie011**-06/11/92: 1 ♀ DeP. **If016**-05/10/95: 2 ♀ DeP. **If018**-24/09/92: 1 ♀ DeP. **If021**-18/11/85: 1 ♀, pupe Ch.,Ci. **If022**-18/11/85: 3 ♂, 4 ♀ Ch., Ci. **Ik040**-14/04/86: 2 ♂ Ge. **Ol051**-25/09/87: 1 ♂, 1 ♀ Ge. **Om053**-15/09/78: 7 ♂, 2 ♀ Ci., Mo., Pi. **Om061**-19/02/89: 2 ♂ Ge. **Pa004**-18/09/78: 1 ♀ Ci., Mo., Pi. **Pb007**-12/04/61: 4 ♂, 3 ♀ Mo. **Pk047**-29/03/96: 1 la. DeP. **Po065**-26/08/92: 3 ♂, 2 ♀ DeP. -27/08/92: 1 la. DeP. **Pp074**-22/07/95: 1 la. DeP. **Pr103**-07/11/95: 1 la. DeP. **Pv121**-18/09/78: 2 ♀ Ci., Mo., Pi. **Pw125**-12/06/85: 1 la. Ge. **Px129**-02/07/97: 1 ♀ DeP.
Europea occidentale. Essenzialmente ambienti igropetrici. Si presenta talvolta più scura, più grande degli esemplari della penisola e con variabilità delle denticolazioni delle appendici inferiori dell'apparato genitale maschile (Botosaneanu et al., 1986). 50-1350 m s.l.m.

Tinodes maroccanus Mosely, 1938
Ok047-27/09/87: 1 ♂ Ge.
Mediterranea occidentale (Tunisia, Marocco, Penisola Iberica). Unica stazione nella Sicilia occidentale.

Tinodes waeneri (Linnaeus, 1758)
Ec068-15/05/61: 4 ♀ Con. **Ia001**-13/10/90: 1 ♀ Malicky, 1992 **If016**-05/10/95: 3 ♂, 8 ♀ DeP. **If018**-24/09/92: 12 ♂, 7 ♀ DeP. -05/10/95: 1 ♀ DeP. **Ig026**-14/10/90: 5 ♂, 1 ♀ Malicky, 1992 -09/06/91: 4 ♂ Malicky, 1992 **Ik042**-22/10/90: 1 ♂, 2 ♀ Ge.
Euromaghrebina. Largamente diffusa in Italia in acque lacustri o debolmente correnti.

Tinodes sp.
Ea037-05/08/92: 4 ♀ DeP. **Ec070**-02/10/86: 1 esuvia Ge. **If016**-05/10/95: 1 ♀ DeP. **If017**-22/04/93: 3 la. DeP. -28/09/93: 1 la. DeP. -25/07/94: 1 la. DeP. **If018**-10/06/94: 1 ♀ DeP. **If021**-11/11/86: 1 ♀, 1 pu. Ge. **Ij032**-15/04/86: larve, 1f pu. Ge. **Ij034**-14/03/93: 3 la. DeP. **Ng037**-17/10/87: 1 ♀ Ge. **Ng039**-13/11/87: 1 ♀ Ge. **Ng044**-25/06/88: 1 ♀ Ge. **Ng050**-11/09/87: 1 la. Ge. **Oi041**-28/03/86: 1 la. Ge. **Ok044**-27/09/87: 1 ♀ Ge. **Pa001**-10/11/87: larve Ge. **Pc013**-17/04/96: 2 la. DeP. **Ph041**-01/09/95: 2 la. DeP. **Ph043**-01/09/95: 5 la. DeP. **Pj045**-12/07/96: 1 la. DeP. **Pm053**-24/10/86: 1 ♀, 1 esuvia Ge. **Pm054**-20/09/87: 1 ♀ Ge. **Pm055**-22/07/95: 2 la. DeP. **Po062**-21/09/93: 1 la. DeP. **Pr081**-31/12/87: 1 ♀ Bu. **Pr088**-04/06/95: 1 la. DeP. **Pr096**-12/09/96: 2 la. DeP.

Famiglia Ecnomidae

Ecnomus tenellus (Rambur, 1842)
Ec078-02/04/89: larve Fe. **Ec083**-22/04/89: larve Fe. **Oi026**-20/08/68: 2 ♀ Ro. -28/08/70: 10 ♂, 8 ♀ Ro.
Paleartica. Laghi e stagni. In Sicilia scarsamente raccolta.

Famiglia Brachycentridae

Micrasema setiferum dolcinii Botosaneanu & Moretti, 1986

Ea030-06/08/92: 1 pu. DeP. **Ec082**-09/04/61: 1 pu. Ci., Gi., Mo., Vi. **Ed084**-26/10/85: 1 ♂, 6 ♀ Ge. -17/11/92: 5 la., 1 pu. DeP. **Ed085**-09/04/61: 6 ♂, 15 la. Ci., Gi., Mo., Vi. **Ef093**-01/12/92: 16 la. DeP. **Ef095**-18/09/85: 7 la. Ge. **If021**-20/04/85: 2 ♂ Ge. -22/04/93: 8 la. DeP. **Ii029**-20/04/85: 2 ♂ Ge. **Pc012**-17/04/96: 3 pu. DeP. -31/07/96: 2 la. DeP. **Pd017**-04/04/96: 1 la. DeP. **Pf036**-15/06/96: 1 ♂ DeP. **Pg040**-29/05/96: 1 la. DeP. **Pn058**-22/07/95: 1 la. DeP. **Pr085**-06/05/95: 1 pu. DeP. -26/04/96: 1 pu. DeP. -12/09/96: 2 la. DeP. **Pr086**-06/05/95: 1 la. DeP. **Ps108**-28/06/96: 5 la. DeP. **Pw126**-10/04/94: 18 la. DeP.

Appennino centro meridionale. Rhithral e hypocrenal. 23-1500 m s.l.m.

Micrasema sp.

Ie009-01/11/86: 1 f.v. Ge. **If021**-28/09/93: 2 la. DeP. -08/12/93: 4 la. DeP. -10/06/94: 1 la. DeP. -25/07/94: 2 la. DeP. **Pj045**-12/07/96: larve DeP. **Pm057**-22/07/95: 7 la. DeP.

Famiglia Limnephilidae

Limnephilus auricula Curtis, 1834

Ea034-04/08/92: 2 ♂, 1 ♀ DeP. **Ea037**-30/05/92: 1 ♂ DeP.

Europea, sino al Turkestan. Prima segnalazione per la Sicilia (Nebrodi).

Limnephilus bipunctatus Curtis, 1834

Ea031-02/07/94: 1 ♀ DeP. **Eb065**-27/04/85: 1 ♂ Ge. **Eg099**-11/05/85: 2 la. Ge. -05/06/85: 1 la. Ge. **Ni058**-05/06/89: 1 ♀ Ge. **Pv120**-04/06/59: 1 ♂ Ru.

Euroanatolica. Acque stagnanti o debolmente correnti della penisola e delle isole.

Limnephilus cianficconiae Malicky, 1980

Ea009-19/11/85: 1 ♂ Botosaneanu et al., 1986 **Ea034**-04/08/92: 3 ♂ DeP. -11/09/93: 1 ♂, 2 ♀ DeP. **Ea037**-30/05/92: 1 ♂ DeP. -23/10/92: 2 ♂ DeP. **Ea048**-07/03/92: 2 ♂ DeP. **Ea049**-23/10/92: 3 ♂ DeP. **Ni061**-13/06/91: 1 ♂ Malicky, 1992 **Nk067**-27/06/86: 1 ♂ Ge., Bu. **Pv117**-10/06/79: 1 ♂ Malicky, 1980 **Px146**-14/06/91: 1 ♂ Malicky, 1992

Descritta su esemplari raccolti in Sicilia, è stata successivamente reperita nell'Appennino parmense ed in Aspromonte (Calabria).

Limnephilus flavicornis (Fabricius, 1787)

Ea010-18/06/61: 1 ♂, 1 ♀ LaG. -06/06/85: larve Ge. **Eb064**-29/04/85: 1 la. Ge. **Ni061**-13/06/91: 1 ♂ Malicky, 1992

Paleartica. Stagnicola, non esigente per le quote altimetriche.

Limnephilus hirsutus (Pictet, 1834)

Ea034-04/08/92: 3 ♂, 1 ♀ DeP. -11/09/93: 1 ♂, 1 ♀ DeP. **Ea048**-31/08/92: 1 ♂, 1 ♀ DeP.

Euroanatolica. Di raro rinvenimento nella penisola; in corsi d'acqua debolmente correnti e in stagni. Rinvenuta solo sui Nebrodi, è stata raccolta da Malicky sull'Etna (in litt. a Moretti).

Limnephilus ignavus McLachlan, 1865

Ea031-31/08/92: 1 ♀ DeP. **Ea034**-23/10/92: 1 ♂ DeP.

Euroturanica. Nuova segnalazione per la Sicilia (Nebrodi). Poco frequente nella penisola italiana.

Limnephilus italicus McLachlan, 1884

Ea015-23/07/59: 1 ♂ Co. **Ea023**-24/06/86: 6 ♂ Ge. **Ea034**-11/09/93: 2 ♀ DeP. **Eb067**-21/04/86: 6 ♂, 1 la.,

esuvie Ge. **Ng041**-07/11/86: 2 la. Ge. -25/06/88: 1 ♂ Ge. **Ng042**-27/09/88: 1 ♀, 1f.v. D'U. -02/06/89: 1 ♂ D'U. **Ng045**-25/06/88: 1 ♂ Ge. **Ng047**-25/06/88: 1 ♂ Al., D'U. **Ng048**-04/11/88: 1 ♂ D'U. -02/06/89: 1 ♂ D'U. **Nk068**-27/06/86: 5 ♂, 1 la., 1 f.v. Ge., Bu.

Francia, Alpi svizzere ed Appennino.

Limnephilus lunatus Curtis, 1834

Ea010-06/06/85: 2 la. Ge. **Ea034**-04/08/92: 4 ♀ DeP. **Ea037**-23/10/92: 1 ♀ DeP. **Ed087**-19/03/97: 1 la. DeP. **Ia001**-08/06/91: 1 ♂ Malicky, 1992 **Ie009**-28/09/93: 1 la. DeP. **If016**-05/10/95: 1 ♂, 1 ♀ DeP. **If018**-24/09/92: 1 ♂, 2 ♀ DeP. **Ig026**-14/10/90: 15 ♂, 5 ♀ Malicky, 1992 -09/06/91: 13 ♂, 5 ♀ Malicky, 1992 -10/06/91: 3 ♂ Malicky, 1992 **Ih027**-16/10/90: 2 ♂ Malicky, 1992 **Ii029**-24/06/79: 1 ♂ Os. **Ik043**-13/04/86: 1 la. Ge. -14/04/86: 1 la. Ge. **Ne022**-19/10/90: 1 ♂ Malicky, 1992.

Europa, Iran, Marocco. In Italia nelle acque ferme o debolmente correnti invase da idrofite sommerse, a diverse altitudini.

Limnephilus sparsus Curtis, 1834

Ea037-05/08/92: 2 ♀ DeP.

Paleartica. Frequenta preferibilmente le acque ferme di montagna di tutta Italia. Rinvenuta sui Nebrodi, è stata raccolta da Malicky sull'Etna (in litt. a Moretti).

Limnephilus vittatus (Fabricius, 1798)

Ea021-13/11/85: 2 la. Ge. **Ea030**-06/08/92: 1 ♂ DeP. **Ea034**-04/08/92: 4 ♂, 2 ♀ DeP. **Eb059**-18/04/86: 1 la. Ge. **Eb062**-21/04/86: 1 la. Ge. **Ed087**-19/03/97: 4 la. DeP. -09/05/97: 1 pu. DeP. **Ni055**-14/11/85: 1 la. Ge. **Ni057**-13/11/85: 1 la. Ge. **Ni061**-13/06/91: 7 ♂, 6 ♀ Malicky, 1992.

Eurosibirica, con estensione all'Anatolia. Frequenta in Italia le acque palustri e le pozze di alpeggio delle zone montane.

Grammotaulius nigropunctatus (Retzius, 1783)

Ea034-04/08/92: 3 ♀ DeP. **Ea048**-31/08/92: 2 ♀ DeP. **Ng043**-27/11/86: 6 la. Ge. **Ng047**-25/06/86: 1 ♂ Ge.

Paleartica. In Italia negli stagni degli altopiani appenninici e negli ambienti acquitrinosi. In Sicilia solo sui Nebrodi.

Glyphotaelius pellucidus (Retzius, 1783)

Ea021-13/11/85: 1 la. Ge.

Eurosibirica. Nuovo reperto per la Sicilia (Nebrodi). In Italia, con discontinuità, dalle Prealpi alla Calabria. In acque stagnanti con fondo ricoperto di foglie maceranti, utilizzate dalle larve per la costruzione dell'indusio e per l'alimentazione.

Potamophylax gambaricus Malicky, 1971

Ea031-31/08/92: 3 ♂, 5 ♀ DeP. -17/08/94: 1 pu. DeP. **Ea032**-31/08/92: 2 ♂, 1 ♀ DeP. -02/07/94: 1 pu. DeP. **Ea033**-05/08/92: 1 ♀ DeP. **Ea034**-04/08/92: 3 ♂, 1 ♀ DeP. -11/09/93: 2 ♂, 2 ♀ DeP. **Ea048**-16/11/92: 1 ♂ DeP. **Ng046**-27/11/86: 1 ♀, f.v. Ge. **Pa004**-17/11/85: 2 ♂, f.v. Ch., Ci. **Pa005**-11/04/61: 1 ♂, f.v. Mo., Ci., Gi., Vi. -18/09/78: 18 ♂, 7 ♀, 3♂ pu. Mo. **Pr088**-04/06/95: 1 la. DeP. -13/09/96: 1 pu. DeP. **Pr097**-13/09/96: 31 pu. DeP. **Pv119**-11/08/64: 1 ♂ Fi.

Sud appenninica. Descritta come *P. cingulatus gambaricus* da Malicky su esemplari della Calabria, è adesso considerata specie separata (Moretti et al., 1994). Crenal e rhithral. 200-1500 m s.l.m.

Potamophylax sp.

Ea008-06/02/96: 3 la. DeP. **Ea013**-25/05/94: 2 la. DeP. **Ea018**-25/05/94: 1 la. DeP. **Ea021**-13/11/85: 2 la. Ge. **Ea022**-13/11/85: 1 la. Ge. **Ea024**-25/06/86: 1 la. Ge., Bu. **Ea030**-06/08/92: 2 la., 2 pu. DeP. **Ea031**-05/08/92: 1 la., 2 pu. DeP. -08/06/93: 1 la. DeP. -17/08/94: 2 la. DeP. -28/12/95: 1 la. DeP. **Ea032**-05/08/92: 2 la. DeP. -17/08/94: 4 la. DeP. **Ea033**-05/08/92: 1 la. DeP. -17/04/93: 1 la. DeP. -02/07/94: 1 la. DeP. -

17/08/94: 2 la. DeP. **Ea034**-04/08/92: 1 pu. DeP. -23/10/92: 1 la. DeP. -08/06/93: 2 la. DeP. -02/07/94: 1 la. DeP. -17/08/94: 1 pu. DeP. **Ea035**-02/07/94: 1 la. DeP. **Ea036**-28/01/94: 6 la. DeP. **Ea037**-31/05/92: 1 la. DeP.-17/04/93: 1 la. DeP. -08/06/93: 1 la. DeP. **Ea040**-17/12/93: 1 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 4 la. DeP. -28/12/95: 3 la. DeP. **Ea042**-23/05/94: 2 la. DeP. **Ea043**-28/02/94: 3 la. DeP. -17/08/94: 1 pu. DeP. **Ea044**-31/05/92: 3 la. DeP. -17/12/93: 1 la. DeP. -02/07/94: 1 la. DeP. -17/08/94: 3 la. DeP. **Nb003**-01/04/86: 1 la. Ge. **Nb004**-01/04/86: 1 la. Ge. **Nd014**-11/10/86: 1 la. Ge. **Ne018**-11/09/85: f.v. pu. Ge. **Ne021**-04/05/97: 2 la. DeP. **Ne025**-14/10/86: f.v. Ge. -14/07/93: 1 la. DeP. **Ng040**-13/11/87: 2 la. Ge. **Ng047**-10/09/87: f.v. Ge. **Nk065**-27/06/86: 1 la. Ge. **Oe009**-29/03/86: 1 la. Ge. **Of010**-04/04/86: 1 la. Ge. **Of013**-09/09/76: pupe Ri. **Oi033**-28/03/86: 1 la. Ge. **Pc008**-17/04/96: 5 la. DeP. **Pc010**-27/06/96: 2 la., 1 pu. DeP. **Pc011**-27/06/96: 15 la. DeP. **Pf035**-06/06/96: 1 la. DeP. **Pr088**-04/06/95: 3 la. DeP. **Pr097**-26/04/96: 3 la. DeP. **Pv113**-12/04/61: larve Mo. **Pw125**-14/04/93: 2 la. DeP. **Pw126**-10/04/94: 5 la. DeP. **Px133**-28/06/92: 1 la. DeP. -03/04/93: 3 la. DeP. **Px137**-25/06/93: 1 la. DeP.

Halesus sp.

Ea022-13/11/85: 1 la. Ge. **Ne025**-11/10/86: 2 la. Ge. **Ng047**-10/09/87: 2 la. Ge. **Ni056**-11/10/87: 2 la. Ge. **Pc010**-27/06/96: 1 la. DeP. **Pw125**-12/06/85: 1 la. Ge.

Prima segnalazione del genere per la Sicilia. L'assenza di adulti non consente la determinazione specifica.

Enoicyla costae McLachlan, 1876

Ea037-20/10/90: 1 ♂ Ge. **Ea049**-23/10/92: 2 ♀ DeP. **Ng039**-13/11/87: 2 ♂ Ge. **Ng040**-13/11/87: 1 ♂ Ge. **Ni056**-11/10/87: 1 ♂ Ge. **Pa003**-17/11/85: 1 ♂ Ch., Ci. **Pa004**-18/09/78: 1 ♂ Mo.

Transionica. Costituisce, con *E. pusilla*, un caso particolare nell'ordine dei Tricotteri in quanto la femmina è attera e la larva non è acquatica. Nebrodi. 5-1320 m s.l.m.

Stenophylax bischofi Malicky, 1992

Ea037-30/05/92: 2 ♂, 3 ♀ DeP. **Ed087**-15/04/94: 1 pu. DeP. -09/05/97: 1 ♀, 4 pu. DeP. **Eg097**-11/10/90: 1 ♀ Malicky, 1992 **Na002**-22/04/95: 1 la. DeP. **Ne022**-06/05/89: 1 ♀ Malicky, 1992 **Ni061**-13/06/91: 1 ♂, 1 ♀ Malicky, 1992 **Sa006**-12/06/91: 1 ♂ Malicky, 1992.

Endemica sicula.

Stenophylax crossotus McLachlan, 1884

Eb062-27/04/85: 1 ♂ Ge.

Mediterranea occidentale. Subtroglofila, di raro rinvenimento in Italia.

Stenophylax mitis McLachlan, 1875

Ea011-25/05/94: 1 pu. DeP. **Ea031**-31/08/92: 1 ♀ DeP. **Ea037**-30/05/92: 14 ♂, 5 ♀ DeP. -23/10/92: 2 ♂, 1 ♀ DeP. **Ea049**-23/10/92: 9 ♂ DeP. **Ie010**-22/11/85: 1 ♀ Ch., Ci. **Nb005**-22/04/95: 1 la. DeP. **Ne022**-19/10/90: 5 ♂, 3 ♀ Malicky, 1992 **Ne024**-30/05/85: 1 ♂ Os. **Ng047**-16/10/87: 3 ♂, 1 ♀ Ge. **Ni061**-13/06/91: 10 ♂, 9 ♀ Malicky, 1992 **Pd019**-16/03/96: 6 la. DeP. **Pq080**-09/10/90: 1 ♂ Malicky, 1992 **Pw125**-09/10/88: 1 ♀ D'U. **Px129**-23/03/96: 1 la. DeP.

Mediterranea. Rinvenuta in Sicilia in ambiente epigeo.

Stenophylax mucronatus McLachlan, 1880

Ea037-30/05/92: 6 ♂, 4 ♀ DeP. -23/10/92: 1 ♀ DeP. **Ef090**-22/05/97: 1 ♀ pu. DeP. **Ia001**-13/10/90: 1 ♂ Malicky, 1992 **Nb005**-22/04/95: 1 la. DeP. **Ne033**-22/07/95: 1 ♀ DeP. -04/05/97: 1 ♂ Gr. **Nk071**-07/04/96: 1 la. DeP. **Oi040**-22/04/95: 2 pu. DeP. **Pd019**-16/03/96: 13 la. DeP. **Pq080**-09/10/90: 1 ♂ Malicky, 1992.

Sud europea. Rinvenuta in Italia in ambienti ipogei tra Toscana e Calabria.

Stenophylax permistus McLachlan, 1895

Ea034-04/08/92: 1 ♂ DeP. **Ea037**-30/05/92: 8 ♂, 8 ♀ DeP. -23/10/92: 1 ♀ DeP. **Ea048**-16/11/92: 3 ♂

DeP. **Ea049**-23/10/92: 1 ♂, 1 ♀ DeP. **Ne022**-19/10/90: 1 ♂, 1 ♀ Malicky, 1992 **Ng041**-07/11/86: 1 ♂ Ge. -17/10/87: 1 ♂ Ge. **Ng042**-16/10/87: 1 ♀ Ge. **Ng049**-16/10/87: 1 ♀ Ge. **Ni061**-13/06/91: 3 ♀ Malicky, 1992 **Nj062**-19/05/70: 1 ♀ Ra. **Nk077**-07/04/96: 1 la. DeP. **Sa006**-12/06/91: 1 ♂ Malicky, 1992.
Europa, Maghreb e Asia minore. Uno dei più grandi stenofilacini cavernicoli, largamente distribuito in tutta Italia. La larva predilige piccoli corsi d'acqua con foglie e cortecce maceranti sul fondo.

Stenophylax sp. cfr. vibex (Curtis, 1834)
Ea034-23/10/92: 1 ♂ DeP.
La determinazione specifica è ancora in corso di studio.

Stenophylax sp.
Ea002-14/01/94: 1 la. DeP. **Ea003**-06/02/96: 4 la. DeP. **Ea004**-06/02/96: 5 la. DeP. **Ea005**-06/02/96: 1 la. DeP. **Ea006**-06/02/96: 1 la. DeP. **Ea007**-06/02/96: 2 la. DeP. **Ea037**-28/01/94: 1 la. DeP. **Ea043**-28/02/94: 1 la. DeP. **Ea045**-05/11/85: 1 la. Ge. **Eb054**-18/02/93: 7 la. DeP. **Eb056**-19/04/86: 2 la. Ge. **Eb057**-19/04/86: pupe Ge. **Nb005**-22/04/95: 3 la. DeP. **Ne016**-13/10/86: f.v. Ge. **Ne027**-22/10/87: esuvia Ge. **Ni053**-14/01/94: 7 la. DeP. **Nk073**-07/04/96: 3 la. DeP. **Nk077**-07/04/96: 4 la. DeP. **Pc009**-25/03/86: 1 la. Ge. **Pd019**-16/03/96: 9 la. DeP. **Pk048**-29/03/96: 3 la. DeP. **Pk049**-29/03/96: 2 la. DeP. **Pk051**-29/03/96: 2 la. DeP. **Px129**-23/03/96: 3 la. DeP. **Px137**-28/03/92: 3 la. DeP. -08/01/93: 2 la. DeP. -03/04/93: 1 la. DeP.

Micropterna fissa (McLachlan, 1875)
Ea037-30/05/92: 1 ♂ DeP. **Ea049**-23/10/92: 1 ♀ DeP. **Eg097**-11/10/90: 1 ♂ Malicky, 1992 **Eg100**-28/10/87: 1 ♂ Ge. **Ik040**-14/04/86: 1 la. Ge. **Ne019**-28/10/87: 1 ♂ D'U. **Ne022**-19/10/90: 1 ♂, 1 ♀ Malicky, 1992 **Pv120**-12/04/61: larve Mo.
Europea. Riscontrata con frequenza in grotte di Lombardia, Veneto, Appennino e Sardegna con un numero elevato di esemplari.

Micropterna nycterobia McLachlan, 1875
Ea037-23/10/92: 1 ♂ DeP. **Ea048**-07/03/92: 1 ♂ DeP. -16/11/92: 6 ♂ DeP. **Ea049**-23/10/92: 2 ♂ DeP. **Ed087**-15/04/94: 1 pu DeP. -19/03/97: 6 la., 1 pu. DeP. -09/05/97: 3 ♂, 2 ♀, 18 pu. DeP. **Nd013**-13/10/86: 1♂ pu. Ge. **Ng046**-27/11/86: 1 ♀ Ge. **Pd019**-16/03/96: 2 la. DeP. **Px128**-23/03/96: 2 la. DeP. **Px129**-23/03/96: 1 la. DeP.
Euroanatolica. Subtroglofila, distribuita in grotte italiane dal Piemonte alla Calabria.

Micropterna sequax McLachlan, 1875
Ne024-30/05/85: larve Ge. **Pv120**-12/04/61: 1 ♂, f.v. Mo.
Euroanatolica. Subtroglofila, conosciuta in Italia in grotte tra il Piemonte e la Campania.

Micropterna testacea (Gmelin, 1789)
Ea048-07/03/92: 1 ♂ DeP. -16/11/92: 4 ♂ DeP. **Ea049**-23/10/92: 1 ♂ DeP. **Ed087**-09/05/97: 2 ♂, 3 pu. DeP. **Eg097**-11/10/90: 1 ♂ Malicky, 1992 **Pd019**-16/03/96: 1 la. DeP. **Pw127**-08/05/96: 3 pu. DeP.
Europea. Subtroglofila, nota in Italia in grotte dal Piemonte alla Calabria.

Micropterna sp.
Ea006-06/02/96: 1 la. DeP. **Ea013**-25/05/94: 3 la. DeP. **Ea043**-28/02/94: 1 la. DeP. **Eb055**-18/02/93: 1 la. DeP. **Na002**-22/04/95: 1 la. DeP. **Ng041**-07/11/86: 2 la. Ge. **Nk066**-06/06/85: 1 la. Ge. **Oi040**-22/04/95: 1 la. DeP. **Pb006**-25/03/86: 1 la. Ge. **Pw125**-12/06/85: 1 la. Ge. **Px128**-16/05/97: 1 pu. ♀ DeP.

Mesophylax aspersus (Rambur, 1842)
Ea006-06/02/96: 1 la. DeP. **Ea037**-30/05/92: 3 ♂, 1 ♀ DeP. **Ea049**-11/05/92: 1 ♂ DeP. **Ea050**-19/11/85: 1 ♂ Botosaneanu et al., 1986 **Ea052**-17/11/92: 1 la. DeP. **Eb055**-18/02/93: 5 la., 1 pu. DeP. **Eb057**-18/02/89: 3 la., 1♂ pu. Ge. **Eb058**-16/04/86: 1 ♀, 1 la. Ge. **Eb059**-04/03/86: 5 la. Ge. -18/04/86: 2 la. Ge. **Eb060**-17/06/85: f.v. Ge.

Eb061-18/04/86: 2 la. Ge. **Eb064**-16/04/86: 2 la. Ge. **Eb065**-27/04/85: 1 ♀ Ge. **Eb066**-27/04/85: 1 ♀ Ge. **Eb067**-18/02/93: 1 pu. DeP. **Ec069**-10/04/61: 1 ♂ Mo. **Ec074**-17/11/92: 1 la. DeP. **Ed087**-15/04/94: 3 la. DeP. **Eg097**-11/10/90: 1 ♀ Malicky, 1992 **Ia001**-08/06/91: 1 ♂ Malicky, 1992 **Ib002**-29/10/62: 1 ♀ LaG. **Ie008**-13/04/86: 1 pu. Ge. -22/05/97: 1 la. DeP. **Ie015**-04/12/60: 3 ♂ LaG., Si. **If024**-04/03/94: 1 ♂ Gr. **Ij035**-12/04/63: 2 la. LaG. **Ij036**-12/04/63: f.v. LaG. **Ik041**-09/02/86: 1 la., 1 pu. Ge. **Ik045**-04/03/94: 1 ♂ Gr. **Na001**-05/04/86: 2 la. Ge. -13/06/86: 2 la. Ge. **Ne033**-22/07/95: 1 ♂ Gr. **Oc004**-14/03/86: 2 la. Ge. **Og018**-21/02/89: 1 la. Ge. **Oi031**-31/03/86: 1 la. Ge. **Oi035**-20/05/63: f.v. Si., Al. **Oi038**-31/03/86: 1 la. Ge. **Om058**-22/04/95: 5 pu. DeP. **Om059**-22/04/95: 3 pu. DeP. **Pc015**-17/04/96: 8 pu. DeP. **Pd016**-04/04/96: 1 la. DeP. **Pk049**-29/03/96: 1 la. DeP. **Pl052**-29/03/96: 1 la. DeP. **Pp075**-06/06/96: 6 la., 6 pu. DeP. **Pr104**-06/05/95: 1 la. DeP. **Pr105**-23/02/93: 3 la. DeP. **Pv120**-12/04/61: f.v. Mo. **Pw127**-08/05/96: 1 pu. DeP. **Px146**-05/06/91: 4 ♂, 1 ♀ Malicky, 1992 **Px149**-02/05/96: 1 la., 3 pu. DeP.
Mediterranea. Subtroglofila, diffusa in molte grotte italiane. In Sicilia rinvenuta nelle cinque grotte in cui sono stati trovati Tricotteri. Crenal-epipotamal. 20-1730 m s.l.m.

Allogamus sp.
Ea006-06/02/96: 2 la. DeP. **Ea025**-26/06/86: 1 la. Ge., Bu. **Ea027**-23/06/86: 1 la. Ge., Bu. **Ea033**-05/08/92: 2 la. DeP. **Ea034**-23/10/92: 2 ♂, 5 ♀ DeP. -02/07/94: 1 la. DeP. **Ea037**-31/05/92: 6 la. DeP. -05/08/92: 1 la. DeP. -23/10/92: 1 ♂, 1 ♀ DeP. -17/04/93: 3 la. DeP. -08/06/93: 2 la. DeP. -12/11/93: 1 ♀ DeP. -02/07/94: 3 la. DeP. -17/08/94: 1 la. DeP. **Ea043**-02/07/94: 1 la. DeP. -17/08/94: 1 la. DeP. **Ea044**-17/08/94: 1 la. DeP. **Ea048**-07/03/92: 2 ♂ DeP. -16/11/92: 2 ♂ DeP. **Eb054**-20/04/86: 1 la. Ge. **Eg099**-11/05/85: 2 la. Ge. **Nd014**-11/10/86: 2 la. Ge. **Ne024**-30/05/85: larve Ci., Mo. **Ng046**-27/11/87: 1 ♂, 1 ♀ Ge. **Pa005**-12/04/61: larve Mo. **Pd019**-16/03/96: 1 la. DeP. **Pv120**-12/04/61: larve Mo. **Pw123**-12/06/85: 1 la. Ge. **Px128**-23/03/96: 1 la. DeP. **Px129**-23/03/96: 3 la. DeP.
Specie ancora in corso di studio, presenta affinità con *A. ausoniae* Moretti, 1991 ed *A. antennatus* McLachlan, 1876.

Chaetopteryx trinacriae Botosaneanu, Cianficconi & Moretti, 1986
Ea022-13/11/85: 1 ♂ Ge. **Ea024**-20/11/85: 15 ♂, 1 ♀, 5 ♂ pu. Botosaneanu et al., 1986 -25/06/86: 2 la. Ge. **Ea026**-26/06/86: 3 la. Ge., Bu. **Ng047**-13/11/87: 1 ♀ D'U. -13/11/87: 1 ♂, 1 ♀ Ge.
Endemica sicula (Nebrodi); unico rappresentante delle Chaetopteryginae nell'isola. Crenobionte vicariante di *C. vulture* Malicky, 1971 della Calabria. Si può ipotizzare possa trattarsi di un relitto glaciale.

Limnephilidae indet.
Ea002-14/01/94: 3 la. DeP. **Ea008**-05/10/93: 1 la. DeP. -06/02/96: 1 la. DeP. **Ea019**-24/06/86: 2 la. Ge. **Ea023**-25/06/86: 2 la. Ge. **Ea026**-04/09/87: 1 la. Ge. **Ea028**-24/06/86: 1 esuvia Ge. **Ea033**-17/12/93: 1 la. DeP. -28/12/95: 1 la. DeP. **Ea034**-17/12/93: 2 la. DeP. **Ea036**-17/12/93: 2 la. DeP. **Ea037**-28/01/94: 1 la. DeP. -28/12/95: 1 la. DeP. **Ea043**-28/02/94: 8 la. DeP. -28/12/95: 1 la. DeP. **Ea044**-17/12/93: 1 la. DeP. **Ea046**-05/11/85: 1 la. Ge. **Ea051**-05/11/85: 1 la. Ge. **Eb058**-20/04/86: 2 la. Ge. **Ed084**-27/10/86: 1 la. Ge. **Ie008**-08/12/93: 2 la. DeP. **If021**-11/11/86: 1 la. Ge. **Ik041**-14/04/86: 1 esuvia Ge. **Ne016**-11/10/86: 1 esuvia Ge. **Ne017**-14/10/86: f.v. pu. Ge. **Ng046**-27/11/86: 1 la. Ge. **Ni057**-13/11/85: 3 la. Ge. **Nk068**-26/06/86: 2 la. Ge. **Nk069**-27/06/86: 2 la. Ge. **Oi040**-22/04/95: 1 pu. DeP. **Ok044**-26/09/87: 1 la. Ge. **Om059**-22/04/95: 1 pu. DeP. **Pe023**-05/11/86: 1 la. Ge. **Pk051**-29/03/96: 1 la. DeP. **Po067**-04/10/87: 1 la. Ge. **Pr085**-26/04/96: 1 la. DeP. **Pr088**-08/11/95: 2 la. DeP. -13/09/96: 1 pu DeP. **Pr092**-08/11/95: 2 la. DeP. **Pr105**-07/11/95: 1 la. DeP. **Px137**-15/11/93: 5 la. DeP. **Sa004**-10/10/86: 1 esuvia Ge.

Famiglia Goeridae

Silo nigricornis (Pictet, 1834)
Ne024-30/05/85: 1 ♂ Mo. **Pq078**-06/07/95: 2 pu. DeP. -21/04/97: 2 pu. DeP. **Pz160**-02/05/97: 1 ♀, 6 la., 13 pu. DeP.
Sud europea. Sinora di raro rinvenimento nell'isola.

Silo sp.
Pq078-06/07/95: 1 la. DeP. **Pr097**-26/04/96: 1 pu. DeP. **Pw124**-14/04/93: 1 pu. DeP. **Pw125**-14/04/93: 1 pu. DeP.

Famiglia Lepidostomatidae

Crunoecia irrorata (Curtis, 1834)
Ea029-22/06/88: 1 ♀ Ge. **Ng036**-24/06/88: 1 ♀ Ge. **Pa005**-12/04/61: larve Ci., Gi., Mo., Vi.
Europea. Piccole sorgenti associate ad igropetrici di tutta Italia. Nebrodi.

Famiglia Leptoceridae

Athripsodes bilineatus (Linnaeus, 1758)
Ie008-22/05/97: 1 ♂, 1 ♀, 1 la. DeP. **Ne029**-03/07/95: 19 ♂, 1 ♀ DeP. **Od007**-02/09/85: larve Ge. **Pe024**-23/06/95: 16 ♂, 3 ♀ DeP.
Euroturanica. Torrenti di zone collinari con correnti non impetuose.

Athripsodes cinereus (Curtis, 1834)
Ie008-22/05/97: 1 ♂ DeP. **Ie009**-28/09/93: 7 la. DeP. **Ie014**-08/04/61: 5 ♂, 1 ♀ Gi., Mo., Vi. **If018**-24/09/92: 2 ♂ DeP. **Ph042**-01/09/95: 1 la. DeP. **Po067**-12/08/85: 1 la. Ge.
Europa, Nord Africa ed Asia centrale. Reperita sporadicamente nella pianura piemontese ed in Lombardia (Lago di Como).

Athripsodes sp.
Ea011-25/05/94: 3 la. DeP.

Triaenodes conspersus (Rambur, 1842)
Ie014-08/04/61: 3 ♂, 3 ♀, 1 la. Gi., Mo., Vi. -08/10/85: 1 la. Ge. **If018**-11/04/92: 1 la. DeP. -22/04/93: 1 la. DeP. -17/06/93: 1 ♀ DeP. **Oi024**-20/08/70: 1 ♂, 1 ♀ Ro. **Oi026**-20/08/68: 1 ♂ Ro. -15/08/70: 1 ♂ Ro. **Oi028**-02/04/86: 1 la. Ge.
Europea; nella regione mediterranea in Marocco e Sicilia. Adulti in primavera-estate.

Setodes argentipunctellus McLachlan, 1877
Ea050-11/09/78: 27 ♂, 30 ♀ Ma., Pi. **Ec075**-25/05/89: larve, pupe Fe. **Oi022**-28/08/70: 34 la. Ro. **Oi023**-16/08/70: 1 ♂ Ro. -16/09/78: 141 ♂, 11 ♀ Ci., Mo., Pi. **Oi024**-26/08/68: 8 ♂, 10 ♀ Ro. -20/08/70: 15 ♂, 9 ♀ Ro. **Oi026**-15/08/70: 7 ♂, 1 ♀ Ro. **Oj042**-16/09/78: 24 ♂, 4 ♀ Ci., Ma., Mo., Pi.
Europea occidentale, con estensione al Maghreb. Diffusa in Sardegna, segnalata nelle Prealpi occidentali ed in Corsica. Predilige acque a temperatura elevata.

Leptocerus tineiformis Curtis, 1834
Ie014-08/04/61: 5 ♂, 1 ♀ Gi., Mo., Vi. **Oi022**-28/08/70: 1 ♀ Ro.
Euroanatolica. Specie palustre, rinvenuta in laghetti agricoli ed in pozze d'alpeggio della penisola.

Famiglia Sericostomatidae

Sericostoma siculum McLachlan, 1876
Ea002-14/01/94: 4 la. DeP. **Ea006**-06/02/96: 2 la. DeP. **Ea008**-05/10/93: 1 la. DeP. -06/02/96: 1 la. DeP. **Ea010**-18/06/61: 1 ♂ LaG. **Ea011**-25/05/94: 1 la. DeP. **Ea016**-01/09/92: 1 ♂ DeP. **Ea027**-23/06/86: 1 la. Ge. **Ea029**-22/06/88: 2 ♂ Ge. **Ea030**-06/08/92: 1 ♀, 6 la. DeP. **Ea031**-05/08/92: 5 la. DeP. -08/06/93: 5 la. DeP. -12/11/93: 1 la. DeP. -17/12/93: 2 la. DeP. -02/07/94: 1 la. DeP. -17/08/94: 1 la. DeP. -28/12/95: 8 la. DeP. **Ea032**-08/06/93: 2 la. DeP. -17/12/93: 4 la. DeP. -02/07/94: 1 pu. DeP. -17/08/94: 1 la. DeP. -28/12/95: 4 la. DeP. **Ea033**-05/08/92: 1 ♀ DeP. -17/04/93: 3 la. DeP. -08/06/93: 1 la. DeP. -12/11/93: 4 la. DeP. -17/12/93: 1 la. DeP. -28/12/95: 2 la. DeP. **Ea034**-04/08/92: 7 ♂, 3 ♀ DeP. -17/12/93: 1 la. DeP. **Ea036**-17/12/93: 1 la. DeP. **Ea037**-31/05/92: 2 la. DeP. -05/08/92: 1 ♂, 2 ♀ DeP. -08/06/93: 1 la. DeP. -12/11/93: 2 la. DeP. -17/12/93: 4

la. DeP. -28/12/95: 1 la. DeP. **Ea039**-08/06/93: 1 la. DeP. **Ea040**-02/07/94: 1 la. DeP. -17/08/94: 3 la. DeP. -28/12/95: 6 la. DeP. **Ea042**-23/05/94: 2 la. DeP. **Ea043**-28/02/94: 1 la. DeP. -28/12/95: 1 la. DeP. **Ea044**-17/12/93: 1 la. DeP. -17/08/94: 3 la. DeP. **Eb063**-26/11/85: 1 la. Ge. **Ec077**-27/10/86: 1f pu.Ge. **Ed084**-27/10/86: 15 la. Ge. -17/11/92: 7 la. DeP. **Ed085**-09/06/61: 10 ♂, 10 ♀ Ci., Gi., Mo., Vi. **Ef090**-22/05/97: 1 ♀ DeP. **Ef095**-31/10/85: 1 la. Ge. **Ia001**-15/05/61: 3 ♂, 3 ♀ Con. **Ic003**-06/11/92: 1 la. DeP. **Ie008**-22/05/97: 6 ♂ DeP. **Ie009**-28/09/93: 2 la. DeP. -08/12/93: 1 la. DeP. -30/04/94: 1 la. DeP. **Ie010**-20/10/87: 1 ♀ Ge. **If016**-17/06/93: 3 ♂ DeP. -05/10/95: 1 ♂ DeP. **If017**-21/01/93: 2 la. DeP. -22/04/93: 4 la. DeP. -17/06/93: 1 ♂, 1 ♀ DeP. -28/09/93: 2 la. DeP. -08/12/93: 6 la. DeP. **If018**-11/04/92: 2 la. DeP. -24/09/92: 3 pu. DeP. -21/01/93: 2 la. DeP. -22/04/93: 3 la. DeP. -17/06/93: 4 ♂, 4 la. DeP. -28/09/93: 1 ♀, 2 la. DeP. -08/12/93: 2 la. DeP. -10/06/94: 4 la. DeP. -24/09/94: 2 ♂ DeP. -05/10/95: 1 la. DeP. **If020**-02/05/85: 1 ♂ Ge. -30/08/87: 1 la. Ge. **If021**-11/11/86: 1 la. Ge. -01/12/86: 1 f.v. Ge. -17/06/93: 1 la. DeP. **Ig025**-17/06/93: 1 ♂ DeP. **Ij031**-15/04/86: 1 la., 1♂ pu. Ge. **Ik039**-14/04/86: 1 la. Ge. **Ik042**-22/10/89: 1 ♀ D'U. **Ik044**-10/05/90: 1 ♀ D'U. **Ne018**-11/09/85: larve Ge. **Ne020**-21/06/61: 10 ♂ Ru. **Ne021**-04/05/97: 2 la. DeP. **Ne023**-12/10/86: 2 la. Ge. **Ne028**-26/07/59: 1 ♂, 1 ♀ Co. **Ne029**-03/07/95: 4 ♀ DeP. **Ne032**-12/09/85: larve Ge. **Nf034**-27/11/85: 4 la. Ge. **Ng041**-07/11/86: 2 ♂, esuvie Ge. **Nj063**-14/11/85: 1 la. Ge. **Nk070**-13/11/85: 1 la. Ge. **Nk073**-07/04/96: 1 la. DeP. **Nk074**-07/04/96: 2 la. DeP. **Nk075**-26/06/86: 1 ♂ Ge., Bu. **Nk076**-12/11/85: 1 la. Ge. **Oe008**-08/02/77: 2 la. Ri. **Og016**-06/09/86: 1 la. Ge. **Oi022**-09/06/61: ♂, ♀, larve Ci., Di G., Gi., Mo. Vi. **Oi041**-28/03/86: 1 la. Ge. **Ok043**-05/09/86: 2 ♂ Ge. **Ok044**-12/09/87: 1 ♂ Ge. -26/09/87: 2 la. Ge. **Ok045**-27/10/87: 1 ♀ Ge. -29/04/93: 1 la. DeP. **Om052**-08/11/85: 1 la. Ge. **Pa005**-11/04/61: larve, f.v. Ci., Gi., Mo., Vi. **Pc008**-17/04/96: 11 la. DeP. **Pc011**-27/06/96: 5 la. DeP. **Pe021**-26/08/92: 1 la. DeP. **Pe022**-26/08/92: 1 la. DeP. **Pe023**-05/11/86: 2 la. Ge. **Pf035**-06/06/96: 4 la., 1 pu. DeP. **Pg039**-09/02/96: 6 la. DeP. -29/05/96: 3 la. DeP. **Pi044**-08/10/67: 1 ♂ Ci., Gi., Mo., Vi. **Pj045**-12/07/96: 3 la. DeP. **Pk050**-29/03/96: 2 la. DeP. **Pm057**-22/07/95: 44 la. DeP. **Pn058**-22/07/95: 4 la. DeP. **Po059**-17/01/94: 3 la. DeP. **Po062**-21/09/93: 3 la. DeP. **Pp076**-02/06/59: 1 ♂ Ru. **Pq077**-06/07/95: 4 la. DeP. **Pq078**-04/07/97: 4 ♂, 4 ♀, 4 la. DeP. **Pr088**-04/06/95: 1 ♂, 3 ♀, 1 la., 12 pu. DeP. **Pv119**-11/08/64: 16 ♂, 2 ♀ Fi. -15/09/74: 2 ♂ Fi. **Pv121**-18/09/78: f.v. Ci., Ma. **Pw124**-14/04/93: 5 la. DeP. **Pw125**-21/06/88: 1 ♂ Ge. **Pw126**-14/04/93: 1 la. DeP. **Px129**-02/07/97: 1 ♀, larve DeP. **Px133**-28/06/92: 1 la. DeP. -03/04/93: 2 la. DeP. -04/02/94: 1 la. DeP. **Px147**-25/06/93: 1 ♂ larve DeP. **Px149**-02/05/96: 1 la. DeP. **Sa002**-13/09/85: larve Ge. **Sa005**-12/09/85: larve Ge.

Sud appenninica. Ruscelli sorgivi e torrenti. Adulti da aprile a novembre. 5-1660 m s.l.m.

Sericostoma sp.

Ea001-14/10/87: 1 la. Ge. **Ne025**-14/10/86: 1 la. Ge. **Nk078**-04/09/87: 2 la. Ge. **Ok047**-27/09/87: 1 la. Ge. **Pe025**-05/11/86: 2 la. Ge. **Sa004**-10/10/86: 1 la. Ge.

Famiglia Beraeidae

Beraea maurus Curtis, 1834

Nk075-26/06/86: 1 ♀ Ge., Bu. **Po070**-31/05/59: 1 ♀ Ru. **Pp076**-02/06/59: 1 ♀ Ru.

Europea. Sorgenti reocreniche associate ad ambienti igropetrici delle Alpi e dell'Appennino centro meridionale.

Beraea sp.

Ea024-04/09/87: 1 la. Ge. **Ne025**-14/10/86: 1 f.v. Ge. **Pe024**-05/11/86: 1 la. Ge. **Pm054**-20/09/87: 1 la., 2 f.v. Ge. **Po068**-04/10/87: 1 la. Ge. **Pv121**-27/10/86: f.v. Ge. **Px138**-16/09/87: 1 la. Ge.

Ernodes nigroauratus Mosely, 1930

Ea029-22/06/88: 8 ♂, 8 ♀ Ge. **Ng036**-02/06/89: 1 ♂ D'U. **Nk075**-26/06/86: 1 ♀ Ge., Bu. **Pf029**-15/06/96: 1 ♂ DeP. **Pf035**-06/06/96: 1 ♂ DeP. **Pg039**-09/02/96: 1 la. DeP. -29/05/96: 1 la. DeP. **Pp076**-02/06/59: 1 ♀ Ru. **Pr094**-20/05/95: 1 ♀ DeP. **Pv121**-12/04/61: 7 ♂, larve Ci., Gi., Mo., Vi.

Corsica, Toscana ed Appennino meridionale. Ambienti sorgivi.

Ernodes nigroauratus siculus Malicky, 1981

Ne031-19/05/81: ♂ Malicky, 1981

Endemica sicula.

Beraeamyia squamosa Mosely, 1930

Ea011-25/05/94: 5 la., 10 pu. DeP. **Ea012**-30/05/94: 1 pu. DeP. **Ea013**-25/05/94: 1 pu. DeP. **Ea018**-25/05/94: 2 la., 2 pu. DeP. **Ea033**-08/06/93: 3 la. DeP. **Ea037**-28/01/94: 1 la. DeP. **Pe024**-23/06/95: 12 ♀, 12 la. DeP. **Pf030**-06/06/96: 1 ♀ DeP. **Pf036**-15/06/96: 1 ♂ DeP. **Po062**-21/09/93: 3 la. DeP. **Po063**-21/09/93: 2 la. DeP. **Po065**-21/09/93: 3 la. DeP. **Pp076**-14/06/75: ♂, ♀ Malicky, 1985 **Pq077**-06/07/95: 11 la. DeP. -04/07/97: 1 ♂ DeP. **Pr084**-13/09/96: 3 la. DeP. **Pr085**-06/05/95: 6 la., 3 pu. DeP. -07/11/95: 8 la. DeP. -26/04/96: 6 la. DeP. -12/09/96: 1 la. DeP. **Pr086**-06/05/95: 1 la., 1 pu. DeP. **Pr089**-04/06/95: 2 ♀ DeP. **Pr091**-08/11/95: 2 la. DeP. **Pr093**-26/04/96: 1 la. DeP. **Pr097**-08/11/95: 2 la. DeP. -13/09/96: 4 la. DeP. **Pr098**-20/05/95: 1 la., 9 pu. DeP. -01/08/95: 4 la. DeP. -13/09/96: 5 la. DeP. **Pr099**-07/11/95: 2 la. DeP. **Pr103**-07/11/95: 3 la. DeP. **Pr104**-06/05/95: 1 ♀ DeP. **Px136**-15/11/93: 2 la. DeP. **Px146**-: ♂, ♀ Malicky, 1985

Alpi Marittime francesi, Pirenei, Appennino (dalla Liguria alla Calabria). Rhithral. Maggio-luglio. 230-1360 m s.l.m.

Beraeamyia sp.

Pm055-22/07/95: 11 la. DeP. **Pr084**-06/05/95: 1 pu. DeP.

Beraeidae indet.

Pn058-22/07/95: 20 la. DeP. **Po062**-23/06/94: 1 pu. DeP. **Po064**-20/07/93: 1 pu. DeP. **Pq078**-06/07/95: 6 la. DeP. **Pq079**-06/07/95: 1 la. DeP. **Ps108**-28/06/96: 1 pu. DeP.

Famiglia Helicopsychidae

*Helicopsyche crispata (*Benoit, 1857)[1]

Ne021-04/05/97: 6 la. DeP. **Ng040**-13/11/87: f.v. Ge. **Ng051**-11/09/87: 2 la. Ge. **Nk072**-04/09/87: 7 la. Ge. **Nk078**-04/09/87: 1 la. Ge. **Pa002**-10/11/87: 1 la. Ge. **Pe025**-05/11/86: 6 la. Ge. **Pf033**-01/11/87: 1 la. Ge. **Pf034**-06/06/96: 2 la. DeP. **Pf035**-29/06/88: 1 ♂ Ge. -06/06/96: 1 ♀ DeP. **Pg039**-09/02/96: 6 la. DeP. -29/05/96: 3 ♂ 4 la. DeP. **Pm053**-24/10/86: 4 la. Ge. **Pm057**-22/07/95: 2 la. DeP. **Pr083**-13/09/96: 1 la. DeP. **Pv121**-12/04/61: 1 ♂, larve, f.v. Ci. **Pw125**-21/06/88: 1 ♂, 1 la. Ge. **Px149**-02/05/96: 2 la. DeP.

Alpino-appenninica (Alpi meridionali, Appennino, Isola d'Elba). Fonti povere di acqua associate ad ambienti igropetrici. 210-1330 m s.l.m.

Famiglia Odontoceridae

Odontocerum albicorne (Scopoli, 1769)

Ea002-14/01/94: 1 la. DeP. **Ea016**-01/09/92: 1 pu. DeP. **Ea019**-24/06/86: 1 la. Ge. **Ea022**-13/11/85: 1 la. Ge. **Ea024**-20/11/85: larve Botosaneanu et al., 1986 -25/06/86: 2 la., 2 pu. Ge., Bu. -04/09/87: 5 la. Ge. **Ea026**-26/06/86: 3 la. Ge., Bu. **Ea027**-23/06/86: 1 la. Ge. **Ea030**-06/08/92: 1 ♀, 3 la. DeP. **Ea031**-31/08/92: 10 ♂ DeP. -12/11/93: 1 la. DeP. -17/12/93: 1 la. DeP. -02/07/94: 1 la., 2 pu. DeP. -17/08/94: 1 la. DeP. **Ea032**-05/08/92: 1 la., 1 pu. DeP. -31/08/92: 5 ♂ DeP. -08/06/93: 1 la. DeP. -11/09/93: 1 la. DeP. -02/07/94: 2 la. DeP. -17/08/94: 1 ♂ DeP. -28/12/95: 4 la. DeP. **Ea033**-08/06/93: 2 la. DeP. -17/12/93: 1 la. DeP. -17/08/94: 1la. DeP. **Ea034**-04/08/92: 16 ♂, 3 ♀ DeP. -11/09/93: 6 ♂, 4 ♀ DeP. -02/07/94: 1 la. DeP. **Ea037**-05/08/92: 4 ♂ DeP. -31/08/92: 2 ♂ DeP. -08/06/93: 1 pu. DeP. -02/07/94: 1 la. DeP. **Ea040**-17/08/94: 1 la. DeP. -28/12/95: 2 la. DeP. **Ea043**-02/07/94: 1 la. DeP. -17/08/94: 1 la. DeP. **Ea044**-08/06/93: 1 la. DeP. -02/07/94: 1 pu. DeP. -17/08/94: 2 la. DeP. **Ec077**-25/08/87: 1 f.v. Ge.

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[1]. In seguito a revisione del genere *Helicopsyche* (Johanson, 1995) *Helicopsyche crispata* (Benoit, 1857) è sinonimo di *H. sperata* McLachlan, 1876 segnalata per la Sicilia in precedenti lavori (Moretti & Cianficconi, 1995)

Ie009-01/12/86: 1 f.v. Ge. **Ie010**-22/11/85: larve Botosaneanu et al., 1986 **Ne025**-14/07/93: 2 la. DeP. **Ng036**-24/06/88: 1 la. Ge. -02/06/89: 1 ♀ D'U. **Ni058**-15/06/61: 3 ♀ Ru. **Of011**-09/09/76: f.v. Ri. **Pc008**-17/04/96: 3 la. DeP. **Pc011**-27/06/96: 1 la., 8 pu. DeP. **Pq078**-04/07/97: 17 ♂, 10 la., 2 pu. DeP. **Pv113**-06/04/61: larve Mo. **Pw123**-12/06/85: larve Ge. **Pw124**-14/04/93: 1 la. DeP. **Px129**-02/07/97: 1 ♂ DeP. **Pz160**-02/05/97: 5 pu. DeP.
Europea. Acque correnti di tutta la penisola, soprattutto in ruscelli ombrosi ed acque fresche e limpide con fondo di ciottoli. Adulti da maggio a settembre.15-1660 m s.l.m.

Discussione

Nel complesso i taxa elencati derivano dalla classificazione di 3008 adulti (2097 maschi e 911 femmine) e di un numero molto più elevato di esemplari agli stadi acquatici raccolti in circa un quarantennio da 28 ricercatori in 455 stazioni. Allo stato attuale delle conoscenze è documentata la presenza in Sicilia di 92 taxa di Tricotteri, appartenenti a 17 famiglie e 45 generi: 79 specie e 7 sottospecie identificate e 6 taxa determinati solo a livello sopraspecifico; l'identificazione specifica di questi ultimi (*Glossosoma sp., Agraylea sp., Allotrichia sp., Halesus sp., Stenophylax sp. cfr. vibex, Allogamus sp.*) sarà possibile attraverso ulteriori ricerche. Dei taxa qui indicati, 16 non sono segnalati per la Sicilia nella "Check list delle specie italiane" (Moretti & Cianficconi, 1995): *Glossosoma sp., Catagapetus nigrans, Hydroptila brissaga, H. sparsa, Wormaldia pulla marlieri, Hydropsyche dinarica, H. morettii, H. spiritoi, Plectrocnemia alicatai, Lype reducta, Limnephilus auricola, L. ignavus, Glyphotaelius pellucidus, Halesus sp., Allogamus sp., Silo nigricornis.* Al contrario, *Hydropsyche pellucidula*, segnalata per la Sicilia nella Check list ed in altri lavori, andrà riferita a *H. morettii* (De Pietro, 1996a) e *H. instabilis* andrà probabilmente attribuita a *H. klefbecki*.

Come in Calabria e Basilicata (Cianficconi et al., 1986), anche in Sicilia risultano assenti le famiglie Phryganeidae e Thremmatidae e non esistono rappresentanti limnefilidi della sottofamiglia Drusinae, che è diffusa in Europa e in ambienti sorgivi della penisola, dalle Alpi all'Abruzzo. Scarsamente rappresentate sono le famiglie Rhyacophilidae, di cui sono state rinvenute solo due specie, e Leptoceridae, di cui non sono stati individuati sino ad oggi i generi *Mystacides* Berthold, 1827, *Ceraclea* Stephens, 1829 ed *Oecetis* McLachlan, 1877.

La Tabella 1 riassume la presenza delle specie nelle stazioni, nei quadrati U.T.M. di 10 km di lato, nelle aree primarie e nelle aree geografiche.

Da questa tabella risulta che tra le specie rinvenute con maggior frequenza nell'isola, secondo i rapporti percentuali di presenze sul totale delle stazioni indagate, vanno segnalate *Rhyacophila rougemonti* (44%), *Hydropsyche klefbecki* (24.6%), *Philopotamus montanus siculus* (23.7%), *H. morettii* (23.5%), *H. spiritoi* (23.1%), *Sericostoma siculum* (20.9%); tra le specie più diffuse, come dimostrano i rapporti percentuali di presenze sul totale dei quadrati U.T.M., figurano: *R. rougemonti* (55.7%), *H. morettii* (41.8%), *S. siculum* (36.1%), *P. montanus siculus* (27%). *Wormaldia mediana nielseni, W. pulla marlieri* e *Potamophylax gambaricus,* hanno probabilmente una diffusione maggiore di quella riportata poiché non sempre è stato possibile determinare gli stadi acquatici per cui nella tabella sono stati riportati anche i dati di diffusione di *Wormaldia sp.* e di *Potamophylax sp.* Tra le specie più rare vanno indicate *Polycentropus francavillensis, Lype reducta, Tinodes maroccanus, Glyphotaelius pellucidus, Stenophylax crossotus, Stenophylax sp. cfr. vibex*, rinvenute ciascuna in una stazione. Riguardo alla famiglia

Tabella 1: diffusione delle specie di Tricotteri in Sicilia.

Specie	stazioni		quadrati		aree primarie[1]	aree geografiche[2]
	n	%	n	%		
Rhyacophila hartigi	30	6.6	14	11.5	E N P S	Est Ma Ne Pe
Rhyacophila rougemonti	200	44.0	68	55.7	E I N O P S	Est Ib Ma Ne Ovest Pe
Glossosoma sp.	6	1.3	3	2.5	E	Ne
Catagapetus nigrans	2	0.4	1	0.8	P	Ne
Agapetus nimbulus	51	11.2	27	22.1	E I N O P	Est Ib Ne Ovest Pe
Stactobia beatensis	1	0.2	1	0.8	O	Ovest
Stactobia fuscicornis	1	0.2	1	0.8	N	Ne
Stactobia moselyi	1	0.2	1	0.8	O	Ovest
Orthotrichia angustella	3	0.7	3	2.5	E O	Est Ovest
Ithytrichia bosniaca	2	0.4	2	1.6	E O	Est Ovest
Oxyethira falcata	4	0.9	3	2.5	E I O	Est Ib Ovest
Oxyethira flavicornis	1	0.2	1	0.8	P	Ne
Oxyethira unidentata	9	2.0	9	7.4	E N O P S	Est Ib Ne Ovest Sud
Hydroptila angulata	4	0.9	4	3.3	E O	Est Ne Ovest
Hydroptila brissaga	1	0.2	1	0.8	P	Pe
Hydroptila giudicellorum	1	0.2	1	0.8	I	Ib
Hydroptila martini	1	0.2	1	0.8	O	Ovest
Hydroptila sparsa	1	0.2	1	0.8	O	Ovest
Hydroptila uncinata	2	0.4	2	1.6	N P	Ma Pe
Hydroptila vectis	21	4.6	17	13.9	E I N O P	Est Ib Ma Ne Ovest Pe
Agraylea sp.	17	3.7	12	9.8	E O P	Est Ne Ovest Pe
Allotrichia sp.	1	0.2	1	0.8	P	Pe
Philopotamus montanus	1	0.2	1	0.8	I	Ib
Philopotamus montanus siculus	108	23.7	33	27.0	E I N P S	Est Ib Ma Ne Pe
Wormaldia mediana nielseni	31	6.8	21	17.2	E I N O P	Ib Ma Ne Ovest Pe
Wormaldia pulla marlieri	2	0.4	2	1.6	P	Pe
Wormaldia sp.	103	22.6	37	30.3	E I N O P	Est Ib Ma Ne Ovest Pe
Chimarra marginata	3	0.7	2	1.6	I	Ib
Hydropsyche dinarica	11	2.4	3	2.5	E	Ne
Hydropsyche doehleri	66	14.5	17	13.9	E N O P S	Ma Ne Ovest Pe
Hydropsyche gereckei	27	5.9	15	12.3	E I	Ib
Hydropsyche klefbecki	112	24.6	33	27.0	E I N O P S	Est Ib Ma Ne Ovest Pe
Hydropsyche modesta	26	5.7	18	14.8	E N O	Est Ovest
Hydropsyche morettii	107	23.5	51	41.8	E I N O P	Est Ib Ma Ne Ovest Pe
Hydropsyche spiritoi	105	23.1	31	25.4	E N O P S	Est Ma Ne Ovest Pe
Cheumatopsyche lepida	13	2.9	11	9.0	E O P	Est Ne Ovest Pe
Plectrocnemia alicatai	2	0.4	2	1.6	E N	Ne
Plectrocnemia geniculata	1	0.2	1	0.8	I	Ib
Plectrocnemia geniculata factiosa	27	5.9	18	14.8	E I N P	Est Ib Ne Pe
Polycentropus divergens	34	7.5	16	13.1	E I N O P	Ib Ma Ne Ovest Pe
Polycentropus francavillensis	1	0.2	1	0.8	P	Pe
Polycentropus malickyi	23	5.0	10	8.2	P E	Ne Pe
Polycentropus mortoni	83	18.2	44	36.1	E I N O P	Est Ib Ma Ne Ovest Pe
Lype phaeopa meridionalis	19	4.2	15	12.3	E I N O P	Est Ib Ne Ovest Pe
Lype reducta	1	0.2	1	0.8	I	Ib
Tinodes locuples	11	2.4	9	7.4	E I N O P	Ib Ma Ne Ovest Pe
Tinodes maclachlani	24	5.3	19	15.6	E I O P	Est Ib Ne Ovest Pe
Tinodes maroccanus	1	0.2	1	0.8	O	Ovest
Tinodes waeneri	6	1.3	5	4.1	E I	Est Ib

segue Tabella 1

Specie	stazioni		quadrati		aree primarie[1]	aree geografiche[2]
	n	%	n	%		
Ecnomus tenellus	3	0.7	3	2.5	E O	Est Oves
Micrasema setiferum dolcinii	17	3.7	13	10.7	E I P	Est Ib Ne Pe
Limnephilus auricula	2	0.4	1	0.8	E	Ne
Limnephilus bipunctatus	5	1.1	5	4.1	E N P	Est Ne
Limnephilus cianficconiae	9	2.0	4	3.3	E N P	Ne Pe
Limnephilus flavicornis	3	0.7	3	2.5	E N	Est Ne
Limnephilus hirsutus	2	0.4	1	0.8	E	Ne
Limnephilus ignavus	2	0.4	2	1.6	E	Ne
Limnephilus italicus	10	2.2	4	3.3	E N	Est Ne
Limnephilus lunatus	13	2.9	11	9.0	E I N	Ib Ma Ne
Limnephilus sparsus	1	0.2	1	0.8	E	Ne
Limnephilus vittatus	9	2.0	7	5.7	E N	Est Ne
Grammotaulius nigropunctatus	4	0.9	2	1.6	E N	Ne
Glyphotaelius pellucidus	1	0.2	1	0.8	E	Ne
Potamophylax gambaricus	11	2.4	7	5.7	E N P	Ne Pe
Potamophylax sp.	42	9.2	15	12.3	E N O P	Ma Ovest
Halesus sp.	6	1.3	6	4.9	E N P	Ma Ne
Enoicyla costae	7	1.5	5	4.1	E N P	Ne
Stenophylax bischofi	7	1.5	7	5.7	E N S	Est Ma Ne Ovest
Stenophylax crossotus	1	0.2	1	0.8	E	Est
Stenophylax mitis	14	3.1	12	9.8	E I N P	Ib Ma Ne Ovest Pe
Stenophylax mucronatus	9	2.0	8	6.6	E I N O P	Ib Ma Ne Ovest Pe
Stenophylax permistus	12	2.6	7	5.7	E N S	Ma Ne
Stenophylax sp. cfr.vibex	1	0.2	1	0.8	E	Ne
Micropterna fissa	8	1.8	5	4.1	E I N P	Est Ib Ma Ne
Micropterna nycterobia	9	2.0	6	4.9	E N P	Ma Ne Pe
Micropterna sequax	2	0.4	2	1.6	N P	Ma Ne
Micropterna testacea	6	1.3	5	4.1	E P	Est Ne Pe
Mesophylax aspersus	48	10.6	30	24.6	E I N O P	Est Ib Ma Ne Ovest Pe
Allogamus sp.	20	4.4	14	11.5	E N P	Est Ma Ne Pe
Chaetopteryx trinacriae	4	0.9	3	2.5	E N P	Ne
Silo nigricornis	3	0.7	3	2.5	N P	Est Ma Pe
Crunoecia irrorata	3	0.7	3	2.5	E N P	Ne
Athripsodes bilineatus	4	0.9	4	3.3	I N O P	Ib Ma Ovest Pe
Athripsodes cinereus	6	1.3	6	4.9	I P	Ib Pe
Triaenodes conspersus	5	1.1	5	4.1	I O	Ib Ovest
Setodes argentipunctellus	7	1.5	4	3.3	E O	Est Ne Ovest
Leptocerus tineiformis	2	0.4	2	1.6	I O	Ib Ovest
Sericostoma siculum	95	20.9	44	36.1	E I N O P S	Est Ib Ma Ne Ovest Pe
Beraea maurus	3	0.7	3	2.5	N P	Ne Pe
Ernodes nigroauratus	9	2.0	8	6.6	E N P	Ne Pe
Ernodes nigroauratus siculus	1	0.2	1	0.8	N	Ma
Beraeamyia squamosa	26	5.7	9	7.4	E P	Ne Pe
Helicopsyche sperata	17	3.7	14	11.5	N P	Ma Ne Pe
Odontocerum albicorne	31	6.8	14	11.5	E I N O P	Est Ib Ma Ne Ovest Pe

[1] sigle aree primarie: E=est, I=Iblei, N=nord, O=ovest, P=Peloritani, S=sud;
[2] sigle aree geografiche: Ib=Iblei, Ma=Madonie, Ne=Nebrodi, Pe=Peloritani.

Hydroptilidae, nell'ambito della quale ci sono diverse specie raccolte raramente, va osservato che probabilmente, per i tipi di campionamenti effettuati, la loro diffusione potrebbe essere sottovalutata.

Dalla tabella emerge l'elevata ricchezza faunistica dei monti Nebrodi da imputare non solo al maggior sforzo di campionamento ma anche alla presenza di numerosi e diversificati ambienti acquatici, sia lotici che lentici, in condizioni di naturalità in grado di ospitare una ricca fauna (Gerecke, 1995). Il 68% di tutte le specie e sottospecie riscontrate in Sicilia si rinviene sui Nebrodi e ben 16 taxa risultano esclusivi. Va osservato che due specie di *Limnephilus* (*L. hirsutus* e *L. sparsus*), citate in questo catalogo solo per località dei Nebrodi, sono state rinvenute da Malicky sull'Etna (in litt. a Moretti).

La ripartizione secondo i bacini idrografici qualifica il bacino del fiume Simeto come il più ricco di specie (72% dei taxa rinvenuti); va tuttavia rilevato che in questo bacino vi è un numero elevato di stazioni e di campionamenti e per la sua estensione (4185 km^2) ospita ambienti diversificati; esso comprende infatti parte di Nebrodi, Etna, Iblei e dei complessi montuosi della Sicilia centrale.

La fisionomia ecologica dei Tricotteri della Sicilia è ricca ed articolata. Anche se le acque ispezionate appartengono prevalentemente al dominio reico, non sono mancati campionamenti in acque meno lotiche ed in alcuni biotopi lenitici ed ipogei.

Nelle acque correnti, nonostante l'analisi non sia ancora sufficiente a causa della disomogeneità dei campionamenti e per le difficoltà di determinazione degli stadi acquatici riscontrate per diverse specie, è possibile individuare alcune preferenze rispetto alle zone ecologiche definite da Illies & Botosaneaunu (1963). Gran parte delle specie sono caratteristiche del rhithral; alcune di esse sono ampiamente diffuse anche nel crenal e nel potamal e sono pertanto da intendersi ad ampia valenza ecologica: *Rhyacophila rougemonti, Hydropsyche morettii, Mesophylax aspersus*. Al crenal sono maggiormente legate le seguenti specie: *Catagapetus nigrans, Plectrocnemia alicatai, P. geniculata factiosa, Tinodes locuples, Chaetopteryx trinacriae, Crunoecia irrorata, Beraea maurus, Ernodes nigroauratus, Helicopsyche crispata.* Tuttavia, alcune di esse sono state rinvenute anche nell'epirhithral e per altre non è ancora possibile affermare che si tratti di specie strettamente legate alle sorgenti. Tra le specie caratteristiche dei tratti iniziali dei corsi d'acqua vanno ricordate *Philopotamus montanus siculus, Hydropsyche doehleri* e *Sericostoma siculum*. Invece, *H. modesta* e *Cheumatopsyche lepida* si rinvengono nell'hyporhithral e nei primi tratti del potamal. Queste ultime due specie, come anche *Hydroptila angulata* e *Polycentropus mortoni*, sono state raccolte in acque torbide e con modesto inquinamento organico. Sono invece considerate madicole *Stactobia beatensis, S. fuscicornis, S. moselyi* e *Tinodes maclachlani*.

Le larve di alcune specie sono state trovate regolarmente in acque correnti a salinità elevata (conducibilità superiore a 1 $mScm^{-1}$) della Sicilia centrale (Gerecke, 1991). Larve di *Rhyacophila rougemonti, Oxyethira sp., Hydroptila sp.* e *Sericostoma siculum* sopportano valori di conducibilità attorno a 2 $mScm^{-1}$ mentre i tre taxa più resistenti appaiono *Polycentropus sp.* (7 $mScm^{-1}$), *Mesophylax aspersus* (11 $mScm^{-1}$) *Hydropsyche modesta* (15 $mScm^{-1}$) e Stenophylacinae *gen. sp.* (20 $mScm^{-1}$).

Una categoria unica in tutto l'ordine si impernia su *Enoicyla costae,* che appartiene all'unico genere con larve terrestri.

Tra gli esponenti lenitici sono da ricordare, oltre ad *Ecnomus tenellus, Tinodes waeneri, Grammotaulius nigropunctatus, Glyphotaelius pellucidus*, anche diverse specie del genere *Limnephilus*.

L'indagine degli ambienti ipogei per quanto riguarda la tricotterofauna non può dirsi ancora sufficiente. Nelle cinque grotte per le quali si hanno dati sui Tricotteri sono state rinvenute solo due specie: *Mesophylax aspersus,* in tutte le grotte, e, solo in una di queste, *Stenophylax mucronatus*. Entrambe le specie sono state ritrovate anche in ambiente epigeo.

L'analisi della distribuzione altitudinale delle specie evidenzia che alcune sono confinate a quote relativamente alte (*Hydropsyche dinarica, Grammotaulius nigropunctatus, Chaetopteryx trinacriae*) mentre *H. modesta* e quattro Leptoceridae (*Athripsodes bilineatus, A. cinereus, Setodes argentipunctellus* e *Triaenodes conspersus*) sono state rinvenute esclusivamente a quote basse. Le rimanenti specie mostrano più o meno ampie distribuzioni o verso le alte o le basse quote. Come già evidenziato da De Pietro (1996b) per gli Hydropsychidae, l'analisi della distribuzione altitudinale fornisce poche informazioni per caratterizzare ecologicamente le specie.

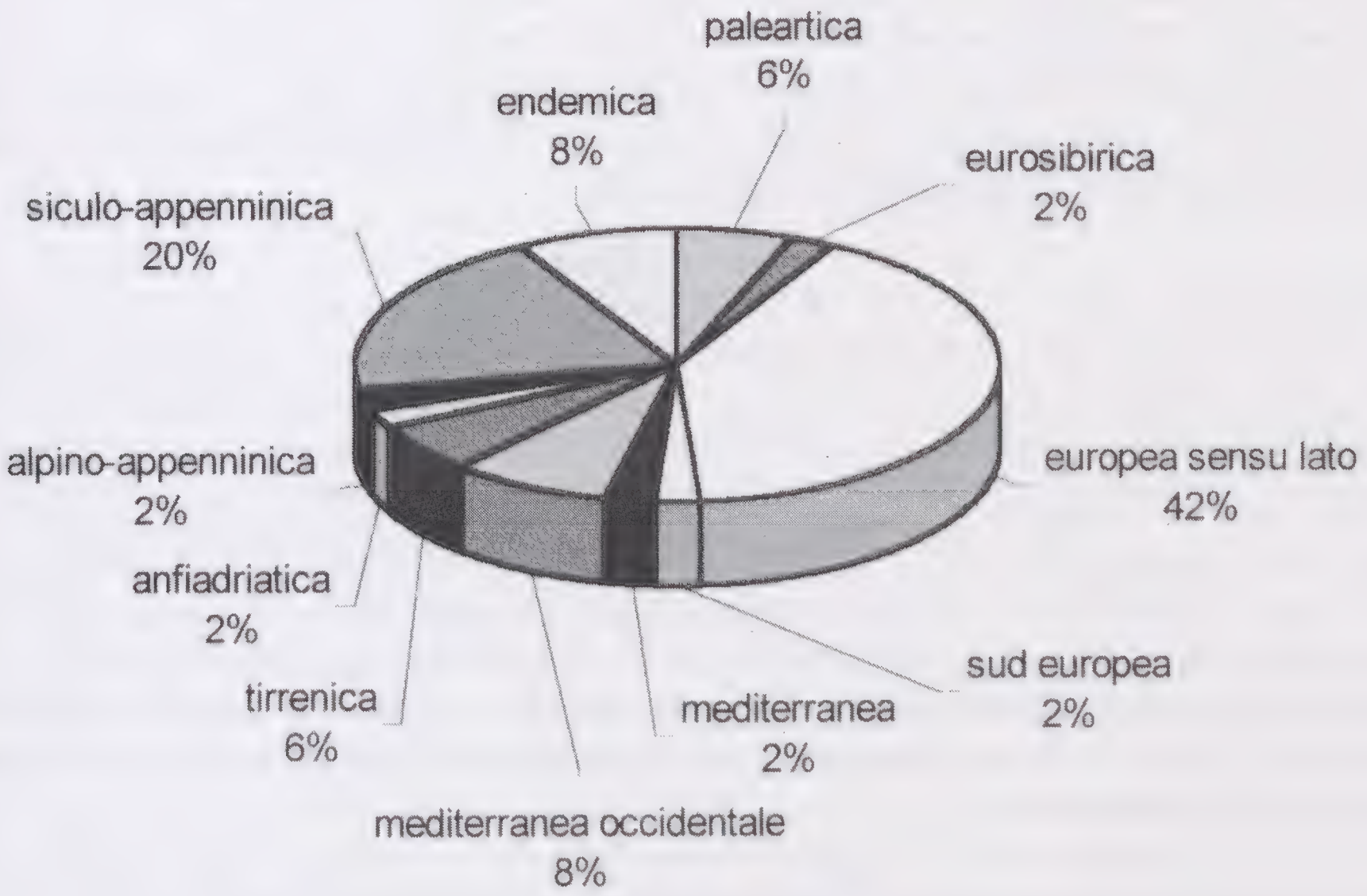

Fig. 3. Distribuzione delle specie di Tricotteri nelle categorie corologiche.

Un bilancio zoogeografico dei Tricotteri della Sicilia (Fig. 3) lascia riconoscere una preponderanza di elementi con distribuzione a gravitazione settentrionale (35 europei *sensu lato*, 5 paleartici, 2 eurosibirici, 2 alpino-appenninici). Ben rappresentati sono gli elementi con distribuzione a gravitazione occidentale (7 mediterraneo-occidentali, 5 tirrenici). Della componente anfiadriatica fanno parte due specie, tra le quali va ricordata *Enoicyla costae* a distribuzione transionica. La componente meridionale è scarsamente rappresentata (2 elementi mediterranei, 2 sud europei). 17 taxa possono essere considerati endemici a distribuzione appennino-sicula, a diversa corologia: appenninica (*Catagapetus nigrans, Limnephilus cianficconiae, Helicopsyche crispata*), centro sud appenninica (*Rhyacophila rougemonti, Wormaldia pulla marlieri, Hydropsyche klefbecki, H. morettii, H. spiritoi, Plectrocnemia alicatai, Polycentropus malickyi, Lype phaeopa meridionalis, Micrasema setiferum dolcinii*), sud appenninica (*Rhyacophila hartigi, Philopotamus montanus siculus, Wormaldia mediana nielseni, Potamophylax gambaricus, Sericostoma siculum*). Sette taxa risultano per ora endemici siculi ad areale più o meno ampio in seno alle aree geografiche considerate: *Hydropsyche gereckei* (Iblei), *Plectrocnemia geniculata factiosa* (Sicilia orientale), *Polycentropus francavillensis* (Peloritani), *Tinodes locuples* (diffuso in diverse aree della Sicilia), *Chaetopteryx trinacriae* (Nebrodi), *Stenophylax bischofi* (diffuso in diverse aree della Sicilia), *Ernodes nigroauratus siculus* (Madonie).

L'affinità riscontrata da Cianficconi et al. (1997) tra le faune di Sicilia e Sardegna a livello di genere (78%) e tra quelle di Sicilia e Calabria a livello di specie (54%), si conferma elevata anche alla luce dei nuovi rinvenimenti.

Questi dati forniscono indicazioni sull'origine del popolamento tricotterologico della Sicilia, avvenuto prevalentemente da ovest attraverso la microplacca calabro-sicula e da nord lungo la dorsale appenninica.

CONCLUSIONI

La fauna dei Tricotteri della Sicilia non può ritenersi ancora definitivamente conosciuta. I corsi d'acqua della catena montuosa settentrionale e degli Iblei sono probabilmente sopravalutati rispetto a quelli delle altre aree. La quasi completa assenza di dati riguardanti la porzione centro meridionale dell'isola è dovuta in parte alla mancanza di studi approfonditi sul popolamento delle acque dell'area in questione. Comunque, i risultati di studi preliminari nella provincia di Enna (Gerecke, 1991) lasciano prevedere che la Sicilia centro meridionale possa essere colonizzata da una tricotterofauna piuttosto uniforme, composta da pochi elementi resistenti a situazioni estreme causate dalla scarsezza d'acqua e dalle particolari condizioni idrogeologiche.

Oltre al completamento degli studi tassonomici ancora in corso sui taxa che presentano problemi di determinazione specifica, i lineamenti generali per la futura ricerca dovrebbero concentrarsi sull'inventario faunistico delle zone ancora poco conosciute. In particolare, per le aree costiere e per la Sicilia centro meridionale è necessaria un'indagine sulle trasformazioni causate dalle attività antropiche, e le conseguenze per la diversità biologica, e sulla presenza di eventuali "oasi" minac-

ciate che finora hanno permesso la sopravvivenza di alcune specie più sensibili. Come dimostra il catalogo qui presentato, i Tricotteri si prestano per una ricerca di questo tipo grazie al cospicuo numero di specie presenti nell'isola, rappresentanti una grande varietà di adattamenti ecologici.

RINGRAZIAMENTI

Desideriamo ringraziare tutti coloro che hanno raccolto esemplari di Tricotteri o che hanno collaborato con noi nella effettuazione dei campionamenti.

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Mem Soc. entomol. ital., 77: 311-316 *31 marzo 1999*

Stefano SCALERCIO

Macrolepidotteri notturni catturati nel Vincese (Toscana - Italia) (Lepidoptera)

Riassunto - Si fornisce la fenologia relativa a 337 specie di macrolepidotteri notturni rinvenute durante un anno di raccolta nel territorio del Vincese. Delle specie raccolte 5 vengono segnalate per la prima volta in Toscana (*Operophtera brumata*, *Eupithecia haworthiata*, *Eupithecia virgaureata*, *Phyllophila obliterata, Ctenoplusia accentifera*). Il rinvenimento di *Diaphora mendica* anche in autunno fa pensare che la specie possa dar luogo ad una seconda generazione. Inoltre si conferma la presenza in Toscana di *Pachypasa otus* a diversi anni dalla prima segnalazione.

Abstract - *The moths of the Vincese (Tuscany - Italy) (Lepidoptera).*
The fenology of 337 species of Heterocera found in Vincese territory during one year of study is recorded in this work. Five species are new to Tuscany (*Operophtera brumata*, *Eupithecia haworthiata*, *Eupithecia virgaureata, Phyllophila obliterata, Ctenoplusia accentifera*). The capture of *Diaphora mendica* in autumn suggests that the species can give rise to a second generation. For conclude, the presence in Tuscany of *Pachypasa otus* is confirmed after several years from the first capture.

Key words: Lepidoptera, faunistic, fenology, diversity, Tuscany.

I dati a tutt'oggi disponibili sui macrolepidotteri notturni della Toscana cominciano ad essere sufficientemente esaustivi della realtà locale. Si pensi ai lavori di Marini & Trentini (1979a, 1979b, 1980, 1982, 1984, 1986) oltre a quelli ormai datati di Verity (1904, 1906). Alcune segnalazioni riguardanti la fauna toscana sono rinvenibili in lavori di più ampio respiro come quelli, in ordine cronologico, di Wolfsberger (1959, 1965), di Prola et al. (1978a, 1978b), di Prola & Racheli (1979, 1980), di Parenzan (1979, 1984, 1994a), di Berio (1985, 1991), di Provera (1992) e di Bertaccini et al. (1995, 1997), per citare solo i più recenti. Numerose sono poi le segnalazioni sparpagliate in altri lavori meno organici (Mascagni & Casini, 1990; Raineri, 1994). Resta comunque ancora molto da fare per giungere ad un quadro faunistico-ecologico completo.

I dati che verranno esposti sono stati raccolti in località Anchiano nel comune di Vinci (Firenze). Il sito è posto a circa 200 metri di quota sulle pendici Ovest del Montalbano che, con la sua cima più elevata, supera appena i 600 metri s. l. m.. Qui il paesaggio è dominato da ulivi (*Olea europea sativa* L.) ai quali nelle vallecole con esposizione ad essi poco favorevole si sostituiscono boschi piuttosto giovani di castagni (*Castanea sativa* Mill.), querce (*Quercus* spp.) ed essenze ripariali. Discreta la presenza di arbusti tipici della macchia mediterranea come l'erica (*Erica arborea* L.), favorita dai frequenti incendi che si verificano nella zona, ed il leccio (*Quercus ilex* L.).

Le raccolte, distribuite con continuità durante un intero anno solare (giugno 1995/giugno 1996) ed effettuate da due a quattro volte a settimana, sono state compiute esclusivamente di notte utilizzando una lampada a luce miscelata da 160 Watt esposta da una finestra

a 4 metri da terra. Gli individui attratti dalla lampada sono rimasti intrappolati in una stanza. In essa gli esemplari sono stati determinati e ne è stata stimata la quantità, ma non sono state condotte né delle conte esatte, tranne che per le specie rinvenute in un unico esemplare, né dei controlli della sex ratio per l'impiego di tempo che ciò avrebbe comportato.

L'area interessata dal raggio d'azione della lampada è posta sul margine superiore del ripido versante esposto a Sud della Forra delle Querce sul quale vi è un oliveto e sul versante opposto dove vegeta una intricata boscaglia di castagno, querce, erica e sporadici esemplari di *Pinus* sp.. Sul fondo della forra scorre un torrente lungo il quale cresce un bosco ripariale con prevalenza di ontano (*Alnus* sp.) e di arbusti di erica piuttosto sviluppati.

Le specie verranno elencate seguendo l'ordine in cui sono riportate nelle checklist delle specie della fauna italiana (Balletto et al, 1995; Karsholt et al., 1995; Raineri & Zangheri, 1995; Raineri et al., 1995; Raineri & Zilli, 1995); per ognuna di esse si metterà in rilievo il periodo di volo e il corotipo di appartenenza (sensu Parenzan, 1994b).

Allo scopo di renderli rapidamente leggibili, i dati verranno ordinati in tabelle nelle cui colonne saranno riassunti i dati di raccolta riferiti ad ogni settimana. Ad una specie rilevata più di una volta durante la settimana corrisponde il numero, bordato, della settimana in cui sono avvenute le catture; ad una specie raccolta una sola volta ma in più di un esemplare corrisponde il solo numero della settimana in cui è stata rilevata; infine, per le specie raccolte in un unico esemplare sarà indicata precisamente la data di raccolta.

Le specie la cui cattura riveste una certa importanza faunistica o ecologica sono contrassegnate da un asterisco e saranno trattate nelle conclusioni.

Anno 1996

		Gen.				Feb.				Mar.				
	settimane	1	2	3	4	5	6	7	8	9	10	11	12	13
62	*Idaea elongaria* (Rambur, 1833)													
63	*Idaea filicata* (Hübner, [1799])													
64	*Idaea infirmaria* (Rambur, 1833)													
65	*Idaea inquinata* (Scopoli, 1763)													
66	*Idaea obsoletaria* (Rambur, 1833)													
67	*Idaea ostrinaria* (Hübner, [1813])													
68	*Idaea politata* (Hübner, 1793)													
69	*Idaea rubraria* (Staudinger, 1871)													
60	*Idaea subsericeata* (Haworth, 1809)													
61	*Idaea trigeminata* (Haworth, 1809)													
62	*Idaea vulpinaria* (Herrich-Schäffer, [1851])													
63	*Rhodostrophia vibicaria* (Clerck, 1759)													
64	*Rhodometra sacraria* (Linné, 1767)													
65	*Cataclysme riguata* (Hübner, [1813])													
66	*Orthonama obstipata* (Fabricius, 1794)													
67	*Xanthorhoe fluctuata* (Linné, 1758)												12	13
68	*Xanthorhoe spadicearia* ([Denis & Schiffermüller], 1775)													
69	*Catarhoe rubidata* ([Denis & Schiffermüller], 1775)													
70	*Epirrhoe alternata* (Müller, 1764)													13
71	*Epirrhoe rivata* (Hübner, [1813])													
72	*Camptogramma bilineatum* (Linné, 1758)													
73	*Larentia clavaria* (Haworth, 1809)													
74	*Cosmorhoe ocellata* (Linné, 1758)													
75	*Nebula salicata* (Hübner, 1799)											11	12	
76	*Ecliptopera silaceata* ([Denis & Schiffermüller], 1775)													
77	*Chloroclysta siterata* (Hufnagel, 1767)												20.III	
78	Thera cupressata (Geyer, [1831])													
79	*Horisme radicaria* (La Harpe, 1855)													
80	*Horisme tersata* ([Denis & Schiffermüller], 1775)													
81	*Horisme vitalbata* ([Denis & Schiffermüller], 1775)													13
82	*Euphya frustata* (Treitschke, 1828)													
83	*Epirrita dilutata* ([Denis & Schiffermüller], 1775)													
84	(*)*Operophtera brumata* (Linné, 1758)		11.I											
85	*Solitanea mariae* (Stauder, 1921)													
86	*Perizoma bifaciatum* (Haworth, 1809)													
87	*Eupithecia abbreviata* Stephens, 1831													27.III
88	*Eupithecia centaureata* ([Denis & Schiffermüller], 1775)													
89	*Eupithecia coccifera*ta Milliére, 1864													
90	*Eupithecia dodoneata* Guenée, 1857												12	
91	*Eupithecia ericeata* (Rambur, 1833)													13
92	(*)*Eupithecia hawortiata* Doubleday, 1856													
93	*Eupithecia innotata* (Hufnagel, 1767)													
94	*Eupithecia oxycedrata* (Rambur, 1833)													
95	*Eupithecia pyreneata* Mabille, 1871/ *linariata* ([D. & S.], 1775)													
96	*Eupithecia semigraphata* (Bruand, [1851])													
97	(*)*Eupithecia virgaureata* Doubleday, 1861													
98	*Gymnoscelis rufifasciata* (Haworth, 1809)													
99	*Chloroclystis v-ata* (Haworth, 1809)													13
100	*Lobophora halterata* (Hufnagel, 1767)													
101	*Lomaspilis marginata* (Linné, 1758)													
102	*Ligdia adustata* ([Denis & Schiffermüller], 1775)												12	13
103	*Stegania trimaculata* (de Villers, 1789)													
104	*Semiothisa alternata* ([Denis & Schiffermüller], 1775)													
105	*Semiothisa notata* (Linné, 1758)													
106	*Rhoptria asperaria* (Hübner, [1817])													
107	*Petrophora chlorosata* (Scopoli, 1763)													
108	*Plagodis dolabraria* (Linné, 1767)													
109	*Pachycnemia hippocastanaria* (Hübner, [1799])												12	13
110	*Sthanelia tibiaria* (Rambur, 1829)													
111	*Opisthograptis luteolata* (Linné, 1758)													
112	*Apeira syringaria* (Linné, 1758)													
113	*Selenia dentaria* (Fabricius, 1775)												12	13

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settimane: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

HEPIALIDAE	
Pharmacis aemiliana (Costantini, 1911)	APP
COSSIDAE	
Cossus cossus (Linné, 1758)	PAL
Zeuzera pyrina (Linné, 1758)	OLA
LIMACODIDAE	
Apoda limacodes (Hufnagel, 1766)	EUR2
LASIOCAMPIDAE	
Lasiocampa quercus (Linné, 1758)	SIE
Macrothylacia rubi (Linné, 1758)	CAE1
Dendrolimus pini (Linné, 1758)	PAL
(*)*Pachypasa otus* (Drüry, 1773)	ESE4
SPHYNGIDAE	
Agrius convolvuli (Linné, 1758)	COS
Acherontia atropos (Linné, 1758)	SCO
Sphinx ligustri (Linné, 1758)	ASE1 mac
Marumba quercus ([Denis & Schiffermüller], 1775)	EUR3
Smerinthus ocellatus (Linné, 1758)	ASE1
Mimas tiliae (Linné, 1758)	ASE
Laothoe populi (Linné, 1758)	CEM
Hyles livornica (Esper, 1780)	COS
Deilephila elpenor (Linné, 1758)	ASE
Deilephila porcellus (Linné, 1758)	WPA
DREPANIDAE	
Watsonalla binaria (Hufnagel, 1767)	EUR2
Watsonalla uncinula (Borkhausen, 1790)	MEW
Cilix glaucata (Scopoli, 1763)	OLA
THYATIRIDAE	
Thyatira batis (Linné, 1758)	ASE
Habrosyne pyritoides (Hufnagel, 1766)	ASE
Tethea ocularis (Linné, 1767)	ASE
Cymatophorima diluta ([Denis & Schiffermüller], 1775)	EUR2
Polyploca ridens (Fabricius, 1787)	CAE1
GEOMETRIDAE	
Alsophila aescularia ([Denis & Schiffermüller], 1775)	EUR
Pseudoterpna coronillaria (Hübner, [1817])	MES
Pseudoterpna pruinata (Hufnagel, 1767)	CAE
Chlorissa etruscaria (Zeller, 1849)	MES
Microloxia herbaria (Hübner, [1813])	CAM
Hemistola biliosata (de Villers, 1789)	PAL
Cychlophora annulata (Schulze, 1775)	EUR4
Cychlophora porata (Linné, 1767)	EUR2
Cychlophora punctaria (Linné, 1758)	EUR4
Cychlophora puppillaria (Hübner, [1799])	TUM mac
Cychlophora quercimontaria (Bastelberger, 1897)	TUE
Cychlophora ruficiliaria (Herrich-Schäffer, [1855])	EUS4
Cychlophora suppunctaria (Zeller, 1847)	EUS2
Timandra griseata (W. Petersen, 1902)	PAL
Scopula imitaria (Hübner, [1799])	MES
Scopula marginepunctata (Goeze,1781)	CEM
Scopula minorata ochroleucaria (Herrich-Schäffer, [1851])	AFM
Scopula nigropunctata (Hufnagel, 1767)	ASE
Scopula ornata (Scopoli, 1763)	PAL
Scopula rubiginata (Hufnagel, 1767)	CAE1
Idaea aversata (Linné, 1758)	PAL
Idaea biselata (Hufnagel, 1767)	ASE
Idaea degeneraria (Hübner, [1799])	CEM
Idaea dimidiata (Hufnagel, 1767)	BAA

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settimane 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

02	*Idaea elongaria* (Rambur, 1833)	26 30 [31]	TUM
03	*Idaea filicata* (Hübner, [1799])	18 19 20 [21] 22 23 24 25 26 27 28 29 30 31 32 [33] [34]	EUS2
04	*Idaea infirmaria* (Rambur, 1833)	25.VII	MED
05	*Idaea inquinata* (Scopoli, 1763)	07.VI 27 28 29 30 [31]	EUM mac
06	*Idaea obsoletaria* (Rambur, 1833)	30.VII	CAM
07	*Idaea ostrinaria* (Hübner, [1813])	[24] 25 26 27	MED5
08	*Idaea politata* (Hübner, 1793)	25.VII	TUE
09	*Idaea rubraria* (Staudinger, 1871)	31	EUS
10	*Idaea subsericeata* (Haworth, 1809)	17 18 19 [20] [21] 30 31 32 33 34 35	CEM
01	*Idaea trigeminata* (Haworth, 1809)	07.VI	EUR2
02	*Idaea vulpinaria* (Herrich-Schäffer, [1851])	27 28 29 30	CAE1
03	*Rhodostrophia vibicaria* (Clerck, 1759)	[24]	ASE1
04	*Rhodometra sacraria* (Linné, 1767)	28 29 30 31 36 37 38 39	AIM
05	*Cataclysme riguata* (Hübner, [1813])	16 17 18 19 20 21 22 23 24 25 26 [27] 28 36	CAE
06	*Orthonama obstipata* (Fabricius, 1794)	[23] 24 25 26 27	SCO
07	*Xanthorhoe fluctuata* (Linné, 1758)	12 13 35 36 37 38 39 40	OLA
08	*Xanthorhoe spadicearia* ([Denis & Schiffermüller], 1775)	02.V	SIE
09	*Catarhoe rubidata* ([Denis & Schiffermüller], 1775)	22 [23] 24 30 31 32 33 34 35	CAE
70	*Epirrhoe alternata* (Müller, 1764)	13 14 15 16 17 18 19 [20] 21 22 23 24 25 [26] [27] 28 29 30 36 37 [38] 39	OLA
71	*Epirrhoe rivata* (Hübner, [1813])	06.V	EUR
72	*Camptogramma bilineatum* (Linné, 1758)	32 33 34 35 36 37 38	CEM
73	*Larentia clavaria* (Haworth, 1809)	43 44 45 46	CEM
74	*Cosmorhoe ocellata* (Linné, 1758)	19 20 21 22 23 24 35 36 37 38	TUE
76	*Nebula salicata* (Hübner, 1799)	11 12 38 39 40 [41] 42 43	EUS2
78	*Ecliptopera silaceata* ([Denis & Schiffermüller], 1775)	20.IX	OLA
77	*Chloroclysta siterata* (Hufnagel, 1767)	20.III 45 [46] 47	EUR3
78	Thera cupressata (Geyer, [1831])	40 [41] 42	ESC
79	*Horisme radicaria* (La Harpe, 1855)	20 23 34	EUR
80	*Horisme tersata* ([Denis & Schiffermüller], 1775)	07.VI	ASE
81	*Horisme vitalbata* ([Denis & Schiffermüller], 1775)	[13] 14 15 27 28 29 30 31 32 33 34 35 36 37	ASE
82	*Euphya frustata* (Treitschke, 1828)	37 38	EUS1
83	*Epirrita dilutata* ([Denis & Schiffermüller], 1775)	37 38	EUR
84	(*)*Operophtera brumata* (Linné, 1758)	11.I	CAE1, OL
85	*Solitanea mariae* (Stauder, 1921)	24 31 32 33 34 35	TIR
86	*Perizoma bifaciatum* (Haworth, 1809)	[38]	TUE1
87	*Eupithecia abbreviata* Stephens, 1831	27.III	EUR
88	*Eupithecia centaureata* ([Denis & Schiffermüller], 1775)	19 20 21 22 23 [24] 25 26 27 28 29 30 38 39 40 41	CEM
89	*Eupithecia coccíferata* Milliére, 1864	29.IV	MEW
90	*Eupithecia dodoneata* Guenée, 1857	12 18 22 [23] 24	EUM
91	*Eupithecia ericeata* (Rambur, 1833)	13 40	EUS
92	(*)*Eupithecia hawortiata* Doubleday, 1856	22 23	EUR2
93	*Eupithecia innotata* (Hufnagel, 1767)	[18]	CEM
94	*Eupithecia oxycedrata* (Rambur, 1833)	[41]	EUS1
95	*Eupithecia pyreneata* Mabille, 1871/ *linariata* ([D. & S.], 1775)	31 41	EUR2
96	*Eupithecia semigraphata* (Bruand, [1851])	34 [35] 36 37 38 39	EUS3
97	(*)*Eupithecia virgaureata* Doubleday, 1861	18 19 36 37	SIE
98	*Gymnoscelis rufifasciata* (Haworth, 1809)	21 22 [23] 24 25 26 27 28 29 30 [31] 35 36	CEM mac
99	*Chloroclystis v-ata* (Haworth, 1809)	13 14 15 16 17 [18] 19 [20] 21 22 23 24 25 [26] [27] 28	ASE
100	*Lobophora halterata* (Hufnagel, 1767)	20	SIE
101	*Lomaspilis marginata* (Linné, 1758)	24	SIE
102	*Ligdia adustata* ([Denis & Schiffermüller], 1775)	12 13 20 26 27 28 29 30 31 32 33	CAE
103	*Stegania trimaculata* (de Villers, 1789)	19 20 21 22 23 [24] 25 26 27 33 34 35 36	CEM
104	*Semiothisa alternata* ([Denis & Schiffermüller], 1775)	17 [18] 19 23 30 31 32 33 34	ASE
105	*Semiothisa notata* (Linné, 1758)	25.VII	ASE
106	*Rhoptria asperaria* (Hübner, [1817])	23 [24] 25 26 27 28 29 30 31 32 33 37 [38] 39	EUS1
107	*Petrophora chlorosata* (Scopoli, 1763)	18 19 20 21 22 23 24	ASE1
108	*Plagodis dolabraria* (Linné, 1767)	23 24 25 26 33 34	ASE
109	*Pachycnemia hippocastanaria* (Hübner, [1799])	12 13 23 24 25 [26] [27] 28 29 30 35 36 37 38 39 40 41	MEE
110	*Sthanelia tibiaria* (Rambur, 1829)	37 [38] 39 40 41	MED5
111	*Opisthograptis luteolata* (Linné, 1758)	19 20 21 22 [23] 35 36 37 38 39 40 41	CAE1
112	*Apeira syringaria* (Linné, 1758)	04.IX	ASE
113	*Selenia dentaria* (Fabricius, 1775)	12 13 26 35	SIE

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15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

26 30 31
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34
25.VII
07.VI 27 28 29 30 31
30.VII
24 25 26 27
25.VII
31
17 18 19 20 21 30 31 32 33 34 35
07.VI
27 28 29 30
24
28 29 30 31 36 37 38 39
16 17 18 19 20 21 22 23 24 25 26 27 28 36
23 24 25 26 27 35 36 37 38 39 40
02.V
22 23 24 30 31 32 33 34 35
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 36 37 38 39
06.V
32 33 34 35 36 37 38
43 44 45 46
19 20 21 22 23 24 35 36 37 38
38 39 40 41 42 43
20.IX
45 46 47
40 41 42
20 23 34
07.VI
15 27 28 29 30 31 32 33 34 35 36 37
37 38
37 38
24 31 32 33 34 35
38
19 20 21 22 23 24 25 26 27 28 29 30 38 39 40 41
29.IV
18 22 23 24
40
22 23
18
41
31
41
34 35 36 37 38 39
18 19 36 37
21 22 23 24 25 26 27 28 29 30 31 35 36
15 16 17 18 19 20 21 22 23 24 25 26 27 28
20
24
20 26 27 28 29 30 31 32 33
19 20 21 22 23 24 25 26 27 33 34 35 36
17 18 19 23 30 31 32 33 34
25.VII
23 24 25 26 27 28 29 30 31 32 33 37 38 39
18 19 20 21 22 23 24
23 24 25 26 33 34
23 24 25 26 27 28 29 30 35 36 37 38 39 40 41
37 38 39 40 41
19 20 21 22 23 35 36 37 38 39 40 41
04.IX
26 35

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		Gen.				Feb.				Mar.					Apr.	
	settimane	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
168	*Diacrisia sannio* (Linné, 1758)															
169	*Arctia villica* (Linné, 1758)															
170	*Euplagia quadripunctaria* (Poda, 1761)															
	CTENUCHIDAE															
171	*Dysauxes famula* (Freyer, 1836)															
	NOCTUIDAE															
172	*Zanclognatha tarsipennalis* (Treitschke, 1835)															
173	*Polypogon plumigeralis* (Hübner, [1825])															
174	*Herminia grisealis* ([Denis & Schiffermüller], 1775)															
175	*Hypena crassalis* (Fabricius, 1787)															
176	*Hypena lividalis* (Hübner, 1796)															
177	*Hypena obsitalis* (Hübner, [1813])															
178	*Hypena proboscidalis* (Linné, 1758)															
179	*Rivula sericealis* (Scopoli, 1763)															
180	*Catocala conjuncta* (Esper, [1787])															
181	*Catocala elocata* (Esper, [1787])															
182	*Catocala nymphagoga* (Esper, [1787])															
183	*Minucia lunaris* ([Denis & Schiffermüller], 1775)															
184	*Dysgonia algira* (Linné, 1758)															
185	*Lygephila craccae* ([Denis & Schiffermüller], 1775)															
186	*Catephya alchymista* ([Denis & Schiffermüller], 1775)															
187	*Aedia leucomelas* (Linné, 1758)															
188	*Tyta luctuosa* ([Denis & Schiffermüller], 1775)															
189	*Laspeyria flexula* ([Denis & Schiffermüller], 1775)															
190	*Meganola albula* ([Denis & Schiffermüller], 1775)															
191	*Meganola strigula* ([Denis & Schiffermüller], 1775)															
192	*Nola chlamitulalis* (Hübner, [1813])															
193	*Nola confusalis* (Herrich-Schaffer, 1847)															
194	*Nycteola columbana* (Turner, 1925)													13		
195	*Earias clorana* (Linné, 1758)															
196	*Earias vernana* (Fabricius, 1787)															
197	*Bena prasinana* (Linné, 1758)															
198	*Pseudoips fagana* (Fabricius, 1781)															
199	*Xanthodes albago* (Fabricius, 1794)															
200	*Colocasia coryli* (Linné, 1758)															
201	*Moma alpium* (Osbeck, 1778)															
202	*Acronicta (Acronicta) aceris* (Linné, 1758)															
203	*Acronicta (Triaena) psi* (Linné, 1758)															
204	*Acronicta (Viminia) rumicis* (Linné, 1758)												12	13	14	15
205	*Craniophora ligustri* ([Denis & Schiffermüller], 1775)															
206	*Cryphia (Cryphia) algae* (Fabricius, 1775)															
207	*Cryphia (Cryphia) ochsi* Boursin, 1940															
208	*Cryphia (Bryoleuca) raptricula* ([Denis & Schiffermüller], 1775)															
209	*Cryphia (Bryopsis) muralis* (Forster, 1771)															
210	*Emmelia trabealis* (Scopoli, 1763)															
211	*Acontia lucida* (Hufnagel, 1766)															
212	(*)*Phyllophila obliterata* (Rambur, 1833)															
213	*Protodeltote pygarga* (Hufnagel, 1766)															
214	*Eublemma ostrina* (Hübner, [1808])															
215	*Eublemma parva* (Hübner, [1808])															
216	*Eublemma purpurina* ([Denis & Schiffermüller], 1775)															
217	*Abrostola agnorista* Dufay, 1956															
218	*Abrostola trigemina* (Wernerburg, 1864)															
219	*Chrysodeixis chalcites* (Esper, [1789])															
220	*Trichoplusia ni* (Hübner, [1803])															
221	(*)*Ctenoplusia accentifera* (Lefebvre, 1827)															
222	*Diachrysia chrysitis* (Linné, 1758)															
223	*Diachrysia chryson* (Esper, [1789])															
224	*Macdunnoughia confusa* (Stephens, 1850)															
225	(*)*Autographa bractea* ([Denis & Schiffermüller], 1775)															

		Anno 1996 (settimane 1–24)	Anno 1995 (settimane 25–52)	
114	*Selenia lunularia* (Hübner, 1788)	13 14 15 16 17 18 19 20	29 30 31 32 33 34	CAE1
115	*Crocallis elinguaria* (Linné, 1758)		15.IX	CAE1
116	*Crocallis tusciaria* (Borkhausen, 1793)		14.XI	EUS3
117	*Colotois pennaria* (Linné, 1761)		45 46 47	OLA
118	*Angerona prunaria* (Linné, 1758)		22.VIII	SIE
119	*Lycia hirtaria* (Clerck, 1759)	10 11 [12] 13 14 15 16 17 18 19		ASE
120	*Biston stratarius* (Hufnagel, 1767)	[12 13 14]		PAL
121	*Chemerina caliginearia* (Rambur, 1833)	12.III		MEW5 mac
122	*Agriopis marginaria* (Fabricius, 1776)	[12 13 14]		EUR1
123	*Erannis defoliaria* (Clerck, 1759)	09.I		CAE1
124	*Menophra abruptaria* (Thunberg, 1792)	7 [8 9] 10 11 17	26	MED5
125	*Peribatodes rhomboidarius* ([Denis & Schiffermüller], 1775)		[27] 34 35 36 37 38 42	CEM
126	*Peribatodes umbrarius* (Hübner, [1809])		38 39 40 41	TUM
127	*Hypomecis punctinalis* (Scopoli, 1763)	20 23 [24]	25 26	ASE
128	*Ascotis selenaria* ([Denis & Schiffermüller], 1775)	16 17 [24]	25 26 27 28 29 [30]	CAE
129	*Ectropis crepuscularia* ([Denis & Schiffermüller], 1775)	13 14 15 16 17 18 24	35	OLA
130	*Parectropis similaria* (Hufnagel, 1767)	22 23		ASE
131	*Adactylotis contaminaria* (Hübner, [1813])	22 23		ESW
132	*Tephronia sepiaria* (Hufnagel, 1767)		30 31 32 33 34 35 38	EUR3
133	*Cabera pusaria* (Linné, 1758)		34	SIE4
134	*Lomographa bimaculata* (Fabricius, 1775)		29.VI	ASE
135	*Campaea honoraria* ([Denis & Schiffermüller], 1775)	18 19 20 21 22 23	30 31 32 33 34 35 36 [37] 38 39 40	EUS1
136	*Campaea margaritata* (Linné, 1767)	21 [22] 23	35 36 37 38 39 40 41	MEE
137	*Semiaspilates ochrearius* (Rossi, 1794)	13 14 15 [16] 17 18 [19 20 21 22 23]	[35] 36 37 38 39 40	MES4
	NOTODONTIDAE			
138	*Phalera bucephala* (Linné, 1758)	[19] 20 21 22 [23 24]	25 [26 27] 28 29 [30] 31	PAL
139	*Phalera bucephaloides* (Ochsenheimer, 1810)		31 32	EUS2
140	*Furcula bifida* (Brahm, 1787)		10.IX	ASE
141	*Stauropus fagi* (Linné, 1758)	18 19 20 21 22 23 [24]	25 26 33	ASE
142	*Peridea anceps* (Goeze, 1781)	19 [20] 21		ASE1
143	*Notodonta dromedarius* (Linné, 1758)		22.VIII	EUR2
144	*Notodonta ziczac* (Linné, 1758)	13 14 20 21	33	ASE
145	*Harpyia milhauseri* (Fabricius, 1775)	22 23 24	34	ASE1
146	*Pheosia tremula* (Clerck, 1759)	16 17 18 19	34 35 36	ASE
147	*Pterostoma palpina* (Clerck, 1759)		32 33	ASE1
148	*Spatalia argentina* ([Denis & Schiffermüller], 1775)	20 21 22 23 [24	25 26] 27 28 29 30	EUR2
149	*Clostera curtula* (Linné, 1758)	18	30 36	SIE
	THAUMETOPOEIDAE			
150	*Thaumetopoea processionea* (Linné, 1758)		33 34 [35] 36	EUR2
151	*Traumatocampa pityocampa* ([Denis & Schiffermüller], 1775)		32 33 [34] 35	EUM
	LYMANTRIDAE			
152	*Calliteara pudibunda* (Linné, 1758)	19 [20] 21 22 23 [24]		ASE
153	*Orgyia antiqua* (Linné, 1758)		25.VII	PAL
154	*Limantria dispar* (Linné, 1758)		25 31 [32 33] 34	OLA
155	*Arctornis l-nigrum* (Müller, 1764)	24	25 26 33	ASE
156	*Ocneria rubea* ([Denis & Schiffermüller], 1775)		37 [38]	EUR1
	ARCTIDAE			
157	*Milthochrista miniata* (Forster, 1771)		33 [34 35] 36 37 38 39 40 41	ASE
158	*Lithosia quadra* (Linné, 1758)		33 38 39 40	ASE
159	*Eilema caniola* (Hübner, [1808])	22 [23 24	25 26] 27 28 29 30 31 32 33 34 35 36	EUR1
160	*Eilema complana* (Linné, 1758)		29 30 31	TUE
161	*Eilema palliatella* (Scopoli, 1763)		[37] 38 39 40 41	TUE
162	*Eilema sororcula* (Hufnagel, 1766)		25 26 36 37 40	CAE
163	*Phragmatobia fuliginosa* (Linné, 1758)	13 [14 15 16] 17 18 19 24	25 [26 27 28 29] 30 31 32 33 34 35 36 37 38 39	OLA
164	*Cymbalophora pudica* (Esper, [1785])		35 36 37 [38] 39 40	MED
165	*Spilosoma luteum* (Hufnagel, 1766)	24	29 30 31 32 33 34 35 36 37	ASE
166	*Spilosoma urticae* (Esper, 1789)		22.IX	ASE
167	(*)*Diaphora mendica* (Clerck, 1759)	16 17 18 19 [20] 21	39	ASE

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168	*Diacrisia sannio* (Linné, 1758)	37 38 39	PAL
169	*Arctia villica* (Linné, 1758)	21 22 23 24 25 26 27 28 29 30	TUE1
170	*Euplagia quadripunctaria* (Poda, 1761)	34 35 36 37 38	CAE
	CTENUCHIDAE		
171	*Dysauxes famula* (Freyer, 1836)	22 23 24 25 26 35 36 37 38 39	MED
	NOCTUIDAE		
172	*Zanclognatha tarsipennalis* (Treitschke, 1835)	15.IX	CAE
173	*Polypogon plumigeralis* (Hübner, [1825])	33 34 35 36 37 38	TEM
174	*Herminia grisealis* ([Denis & Schiffermüller], 1775)	37 38 39	ASE
175	*Hypena crassalis* (Fabricius, 1787)	27.VIII	EUR2
176	*Hypena lividalis* (Hübner, 1796)	09.X 15.XI	TUM mac + Ind
177	*Hypena obsitalis* (Hübner, [1813])	49 50	MES mac
178	*Hypena proboscidalis* (Linné, 1758)	01.IX	PAL + India
179	*Rivula sericealis* (Scopoli, 1763)	23 30 37 38	CAM
180	*Catocala conjuncta* (Esper, [1787])	34 35 36	MES
181	*Catocala elocata* (Esper, [1787])	22.IX	CEM
182	*Catocala nymphagoga* (Esper, [1787])	30 31 32 33	MES
183	*Minucia lunaris* ([Denis & Schiffermüller], 1775)	17 18 19 20	EUM
184	*Dysgonia algira* (Linné, 1758)	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38	MES
185	*Lygephila craccae* ([Denis & Schiffermüller], 1775)	26 27 28 29 30 36 37 38 39 40 41	CAE
186	*Catephya alchymista* ([Denis & Schiffermüller], 1775)	25 26 27 28	EUM4
187	*Aedia leucomelas* (Linné, 1758)	23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42	CAM
188	*Tyta luctuosa* ([Denis & Schiffermüller], 1775)	22 23 24 25 26 27 28 29 30 37 38 39	CEM
189	*Laspeyria flexula* ([Denis & Schiffermüller], 1775)	34 35 36	CAE
190	*Meganola albula* ([Denis & Schiffermüller], 1775)	19 20 21 22 23 34 35 36	ASE
191	*Meganola strigula* ([Denis & Schiffermüller], 1775)	23 24 33 34 35	EUR3
192	*Nola chlamitulalis* (Hübner, [1813])	23 35	CAM
193	*Nola confusalis* (Herrich-Schaffer, 1847)	17 24	CAE
194	*Nycteola columbana* (Turner, 1925)	13 23	MED5
195	*Earias clorana* (Linné, 1758)	19 26 27 28	ASE
196	*Earias vernana* (Fabricius, 1787)	28 29 30	EUS3
197	*Bena prasinana* (Linné, 1758)	23 33 37 38	EUR2
198	*Pseudoips fagana* (Fabricius, 1781)	23 24 25 26 27 28 29 30 31 32 33 34	SIE
199	*Xanthodes albago* (Fabricius, 1794)	03.IX	SCO
200	*Colocasia coryli* (Linné, 1758)	17 18 30 31 32 33 34 35	ASE
201	*Moma alpium* (Osbeck, 1778)	23 24 25 26 27 28	CAE
202	*Acronicta (Acronicta) aceris* (Linné, 1758)	24 30	CAE
203	*Acronicta (Triaena) psi* (Linné, 1758)	17 18 19 26 27 28 29 30 31 35 36 37 38	PAL
204	*Acronicta (Viminia) rumicis* (Linné, 1758)	12 13 14 15 16 17 24 25 26 27 28 29 30 37 38 39	OLA
205	*Craniophora ligustri* ([Denis & Schiffermüller], 1775)	17 24 30 35	CAE
206	*Cryphia (Cryphia) algae* (Fabricius, 1775)	25.VII	CAE1
207	*Cryphia (Cryphia) ochsi* Boursin, 1940	30 31 32 33 34 35	EUS2
208	*Cryphia (Bryoleuca) raptricula* ([Denis & Schiffermüller], 1775)	26 27 28	CEM
209	*Cryphia (Bryopsis) muralis* (Forster, 1771)	17 27 28 29 30 31 32 33 34 38	EUM
210	*Emmelia trabealis* (Scopoli, 1763)	21 22 23 24 25 26 30 31 32 33 38	PAL
211	*Acontia lucida* (Hufnagel, 1766)	18 19 20 21 22 23 24 25 26 27 28 29 30	PAL
212	(*)*Phyllophila obliterata* (Rambur, 1833)	34 35	ASE
213	*Protodeltote pygarga* (Hufnagel, 1766)	17 22 23 24 25 26 27 31 35	CAE
214	*Eublemma ostrina* (Hübner, [1808])	30.VII	CEM mac
215	*Eublemma parva* (Hübner, [1808])	23	TEM mac + Indi
216	*Eublemma purpurina* ([Denis & Schiffermüller], 1775)	35 41	TEM
217	*Abrostola agnorista* Dufay, 1956	18 19 20 21 22 23 28	EUS
218	*Abrostola trigemina* (Wernerburg, 1864)	19 20 21 22 23	ASE
219	*Chrysodeixis chalcites* (Esper, [1789])	29 30 35 36 37 38 39 40 41	SCO
220	*Trichoplusia ni* (Hübner, [1803])	18 28 29 30 31 37 38 39	SCO
221	(*)*Ctenoplusia accentifera* (Lefebvre, 1827)	33 34 35 36 37 38	AFM
222	*Diachrysia chrysitis* (Linné, 1758)	39 40 41	CAE
223	*Diachrysia chryson* (Esper, [1789])	08.IX	ASE1
224	*Macdunnoughia confusa* (Stephens, 1850)	26 27 35 36 37 38 39 40 41	CAE
225	(*)*Autographa bractea* ([Denis & Schiffermüller], 1775)	19.VIII	ASE

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16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

PAL . . . . . 37 38 39 . . . . . .
TUE . . . . . 21 [22 23 24] 25 26 27 28 29 30 . . . . . .
CAE . . . . . 34 35 36 37 38 . . . . . .
MED . . . . . 22 23 24 25 26 . . . . . 35 36 [37] 38 39 . . . . . .
CAE . . . . . 15.IX . . . . . .
TEM . . . . . 33 [34] 35 36 [37 38] . . . . . .
ASE . . . . . 37 38 39 . . . . . .
EUR . . . . . 27.VIII . . . . . .
TUM . . . . . 09.X . . 15.XI . . .
MES . . . . . 49 50 . .
PAL . . . . . 01.IX . . . . . .
CAN . . . . . 23 . . . . . 30 . . . . . 37 [38] . . . . . .
MES . . . . . 34 35 36 . . . . . .
CEM . . . . . 22.IX . . . . . .
MES . . . . . 30 31 32 33 . . . . . .
EUM . 17 [18] 19 20 . . . . . .
MES . . . . . 21 22 [23 24] 25 26 27 28 29 [30] 31 32 [33 34] 35 36 37 38 . . . . . .
CAE . . . . . [26 27] 28 29 30 . . . . . 36 [37 38] 39 40 41 . . . . . .
EUM . . . . . 25 [26 27] 28 . . . . . .
CAN . . . . . 23 [24 25 26 27] 28 29 30 31 32 [33 34] 35 36 37 [38] 39 40 41 42 . . . . . .
CEM . . . . . 22 [23 24 25 26 27] 28 29 30 . . . . . 37 38 39 . . . . . .
CAE . . . . . 34 35 36 . . . . . .
ASE . . . 19 20 21 22 23 . . . . . 34 35 36 . . . . . .
EUR . . . . . 23 24 . . . . . 33 34 35 . . . . . .
CAN . . . . . 23 . . . . . 35 . . . . . .
CAE . 17 . . . . . 24 . . . . . .
MED . . . . . 23 . . . . . .
ASE . . . 19 . . . . . [26 27] 28 . . . . . .
EUS . . . . . 28 29 30 . . . . . .
EUR . . . . . [23] . . . . . 33 . . . 37 38 . . . . . .
SIE . . . . . 23 24 25 26 27 28 29 30 31 32 33 34 . . . . . .
SCO . . . . . 03.IX . . . . . .
ASE . 17 18 . . . . . 30 31 32 33 34 35 . . . . . .
CAE . . . . . [23 24] 25 26 27 28 . . . . . .
CAE . . . . . 24 . . . . . 30 . . . . . .
PAL . 17 18 19 . . . . . [26 27] 28 29 30 31 . . . 35 36 37 38 . . . . . .
OLA 16 17 . . . . . [24] 25 [26 27] 28 29 30 . . . . . 37 38 39 . . . . . .
CAE . 17 . . . . . 24 . . . . . 30 . . . . 35 . . . . . .
CAE . . . . . 25.VII . . . . . .
EUS . . . . . 30 31 32 [33] 34 35 . . . . . .
CEM . . . . . [26 27 28] . . . . . .
EUM . 17 . . . . . 27 28 29 30 31 32 33 34 . . . [38] . . . . . .
PAL . . . . 21 22 [23 24 25] 26 . . . [30] 31 32 33 . . . . 38 . . . . . .
PAL . . 18 19 20 21 22 [23 24 25] 26 27 28 29 30 . . . . . .
ASE . . . . . 34 35 . . . . . .
CAE . 17 . . . 22 [23 24] 25 26 27 . . . 31 . . . 35 . . . . . .
CEM . . . . . 30.VII . . . . . .
TEM . . . . . [23] . . . . . .
TEM . . . . . 35 . . . . . 41 . . . . . .
EUS . . 18 19 20 21 22 23 . . . . 28 . . . . . .
ASE . . . 19 20 21 22 23 . . . . . .
SCO . . . . . 29 30 . . . . 35 36 37 38 39 40 41 . . . . . .
SCO . . 18 . . . . . 28 29 30 31 . . . . 37 38 39 . . . . . .
AFM . . . . . 33 34 35 36 [37] 38 . . . . . .
CAE . . . . . 39 40 41 . . . . . .
ASE . . . . . 05.IX . . . . . .
CAE . . . . . [26 27] . . . . 35 36 37 38 39 40 41 . . . . . .
ASE . . . . . 19.VIII . . . . . .

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		Gen.				Feb.				Mar.						Apr.	
	settimane	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1
288	*Lacanobia (Lacanobia) w-latinum* (Hüfnagel, 1766)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
289	*Lacanobia (Diataraxia) oleracea* (Linné, 1758)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
290	*Hecatera bicolorata* (Hufnagel, 1766)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
291	*Hecatera dysodea* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
292	*Anepia silenes* (Hübner, [1822])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
293	*Hadena bicruris* (Hufnagel, 1766)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
294	*Hadena luteago* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
295	*Mamestra brassicae* (Linné, 1758)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
296	*Leucania putrescens* (Hübner, [1824])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
297	*Aletia (Aletia) albipuncta* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	.	13	14	1
298	*Aletia (Aletia) congrua* (Hübner, [1817])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
299	*Aletia (Aletia) ferrago* (Fabricius, 1787)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
300	*Aletia (Aletia) l-album* (Linné, 1767)	.	.	.	.	.	.	.	.	.	.	11	12	13	14	1
301	*Aletia (Aletia) vitellina* (Hübner, [1808])	.	2	3	4	5	6	7	8	9	10	11	12	13	14	1
302	*Aletia (Anapoma) riparia* (Rambur, 1829)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
303	*Sablia scirpi* (Duponchel, 1836)	.	.	.	.	.	.	.	.	.	.	.	12	13	14	1
304	*Sablia sicula* (Treitschke, 1835)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
305	*Acantholeucania loreyi* (Duponchel, 1827)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
306	*Pseudaletia unipuncta* (Haworth, 1809)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
307	*Orthosia cerasi* (Fabricius, 1775)	.	.	.	.	.	.	.	.	.	10	11	12	13	14	.
308	*Orthosia cruda* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	.	13	14	.
309	*Orthosia gothica* (Linné, 1766)	.	.	.	.	.	.	.	.	.	.	.	12	13	.	.
310	*Orthosia incerta* (Hufnagel, 1766)	.	.	.	.	.	.	.	.	.	.	.	.	13	14	1
311	*Orthosia miniosa* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	12	13	14	1
312	*Orthosia munda* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	11	12	13	14	1
313	*Egira conspicillaris* (Linné, 1758)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
314	*Lasionycta calberlai* (Staudinger, 1883)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
315	*Peridroma saucia* (Hübner, [1808])	.	.	.	.	.	.	.	.	.	.	.	.	13	14	1
316	*Axylia putris* (Linné, 1761)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
317	*Ochropleura leucogaster* (Freyer, [1831])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
318	*Ochropleura plecta* (Linné, 1761)	.	.	.	.	.	.	.	.	.	.	.	.	.	14	1
319	*Noctua pronuba* (Linné, 1758)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
320	*Paranoctua comes* (Hübner, [1813])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
321	*Paranoctua interjecta* (Hübner, [1803])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
322	*Lampra fimbriata* (Schreber, 1759)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
323	*Lampra tirrenica* (Biebinger, Speidel & Hanigk, 1983)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
324	*Euschesis janthe* (Borkhausen, 1792)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
325	*Euschesis janthina* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
326	*Euschesis tertia* (von Mentzer, Moberg & Fibiger, 1991)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
327	*Epilecta linogrisea* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
328	*Megasema c-nigrum* (Linné, 1758)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
329	*Xestia castanea* (Esper, [1798])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
330	*Xestia xanthographa* ([Denis & Schiffermüller], 1775)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
331	*Cerastis faceta* (Treitschke, 1835)	.	2	.	.	.	.	.	.	.	.	11	12	13	14	1
332	*Euxoa (Euxoa) temera* (Hübner, [1808])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
333	*Agrotis crassa* (Hübner, [1803])	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
334	*Agrotis exclamationis* (Linné, 1758)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
335	*Agrotis ipsilon* (Hufnagel, 1766)	.	2	.	.	.	.	.	.	.	.	.	12	13	14	1
336	*Agrotis puta* (Hübner, [1803])	.	.	.	.	.	.	.	.	.	.	.	.	13	14	1
337	*Agrotis segetum* ([Denis & Schiffermüller], 1775)	.	2	.	.	.	.	.	.	.	.	.	.	13	14	1

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26	*Autographa gamma* (Linné, 1758)	PAL
27	*Calophasia lunula* (Hufnagel, 1766)	CAE
28	*Amphipyra pyramidea* (Linné, 1758)	ASE
29	*Heliothis peltigera* ([Denis & Schiffermüller], 1775)	CEM
30	*Helicoverpa armigera* (Hübner, [1808])	SCO
31	*Pyrrhia umbra* (Hufnagel, 1766)	PAL
32	*Elaphria venustula* (Hübner, 1790)	OLA
33	*Srilbia faillae* Püngeler, 1891	MEW
34	*Platyperigea aspersa* (Rambur, 1834)	MES
35	*Platyperigea kadenti* (Freyer, 1836)	CAE
36	*Paradrina clavipalpis* (Scopoli, 1763)	PAL
37	*Paradrina flavirena* (Guenée, 1852)	MES
38	*Hoplodrina ambigua* ([Denis & Schiffermüller], 1775)	CEM
39	*Atypha pulmonaris* (Esper, [1790])	TUE
40	*Spodoptera exigua* (Hübner, [1808])	SCO
41	*Dypterygia scabriuscula* (Linné, 1758)	ASE
42	*Rusina tristis* (Retzius, 1783)	EUR2
43	*Mormo maura* (Linné, 1758)	TEM
44	*Polyphaenis viridis* (de Villers, 1789)	EUR2
45	*Thalpophila matura* (Hufnagel, 1766)	EUR2
46	*Trachea atriplicis* (Linné, 1758)	ASE
47	*Euplexia lucipara* (Linné, 1758)	OLA
48	*Phlogophora meticulosa* (Linné, 1758)	EUM mac
49	*Cloantha hyperici* ([Denis & Schiffermüller], 1775)	EUR2
50	*Callopistria juventina* (Stoll, 1782)	PAL
51	*Callopistria latreillei* (Duponchel, 1827)	EUM mac
52	*Agrochola (Agrochola) lychnidis* ([Denis & Schiffermüller], 1775)	EUM
53	*Agrochola (Sunira) circellaris* (Hufnagel, 1766)	CAE
54	*Spudaea ruticilla* (Esper, [1791])	EUM
55	*Jodia croceago* ([Denis & Schiffermüller], 1775)	CAE1
56	*Conistra (Conistra) rubiginosa* (Scopoli, 1763)	EUR2
57	*Conistra (Conistra) vaccinii* (Linné, 1761)	CAE
58	*Conistra (Dasycampa) erythrocephala* ([Denis & Schiffermüller], 1775)	EUM
59	*Conistra (Dasycampa) rubiginea* ([Denis & Schiffermüller], 1775)	EUR2
60	*Episema glaucina* (Esper, 1789)	TEM
61	*Aporophyla canescens* (Duponchel, 1826)	EUS
62	*Aporophyla lutulenta* ([Denis & Schiffermüller], 1775)	EUR
63	*Aporophyla nigra* (Haworth, 1809)	EUM
64	*Lithophane (Lithophane) hepatica* (Clerck, 1759)	OLA
65	*Lithophane (Lithophane) ornitopus* (Hufnagel, 1766)	ASE1
66	*Litophane (Prolitha) lapidea* (Hübner, [1808])	MEE
67	*Xylocampa areola* (Esper, [1789])	EUM
68	*Allophyes oxyacanthae* (Linné, 1758)	ASE
69	*Dryobota labecula* (Esper, [1788])	EUM
70	*Griposia aprilina* (Linné, 1758)	EUR2
71	*Dryobotodes (Dryobotodes) carbonis* (F. Wagner, 1931)	EUS
72	*Dryobotodes (Dryobotodes) monochroma* (Esper, [1790])	MES
73	*Dryobotodes (Dichonioxa) tenebrosa* (Esper, [1813])	EUS1
74	*Ammoconia caecimacula* ([Denis & Schiffermüller], 1775)	CAE mac
75	*Trigonophora flammea* (Esper, [1785])	EUR
76	*Polymixis (Serpmixis) serpentina* (Treitschke, 1825)	MEE
77	*Polymixis (Myxinia) rufocincta* (Geyer, [1828])	EUR2
78	*Blepharita satura* ([Denis & Schiffermüller], 1775)	SIE
79	*Mniotype solieri* (Boisduval, 1840)	EUS
80	*Oligia latruncula* ([Denis & Schiffermüller], 1775)	ASE
81	*Mesoligia furuncula* ([Denis & Schiffermüller], 1775)	CAE1
82	*Mesapamea didyma* (Esper, 1788)	EUR2
83	*Mesapamea secalis* (Linné, 1758)	CAE1
84	*Eremobia ochroleuca* ([Denis & Schiffermüller], 1775)	EUR6
85	*Luperina dumerilii* (Duponchel, 1835)	EUM
86	*Chortodes sohnreteli* (Pungeler, 1907)	APP
87	*Discestra trifolii* (Hufnagel, 1766)	OLA

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288	*Lacanobia (Lacanobia) w-latinum* (Hüfnagel, 1766)	ASE
289	*Lacanobia (Diataraxia) oleracea* (Linné, 1758)	TEM
290	*Hecatera bicolorata* (Hufnagel, 1766)	SIE
291	*Hecatera dysodea* ([Denis & Schiffermüller], 1775)	CAE1
292	*Anepia silenes* (Hübner, [1822])	MED5
293	*Hadena bicruris* (Hufnagel, 1766)	CAE1
294	*Hadena luteago* ([Denis & Schiffermüller], 1775)	ASE1
295	*Mamestra brassicae* (Linné, 1758)	OLA + Indi
296	*Leucania putrescens* (Hübner, [1824])	TEM
297	*Aletia (Aletia) albipuncta* ([Denis & Schiffermüller], 1775)	CAE1
298	*Aletia (Aletia) congrua* (Hübner, [1817])	EUS2
299	*Aletia (Aletia) ferrago* (Fabricius, 1787)	CAE
300	*Aletia (Aletia) l-album* (Linné, 1767)	PAL + India
301	*Aletia (Aletia) vitellina* (Hübner, [1808])	TEM mac
302	*Aletia (Anapoma) riparia* (Rambur, 1829)	EUS
303	*Sablia scirpi* (Duponchel, 1836)	EUR
304	*Sablia sicula* (Treitschke, 1835)	EUM
305	*Acantholeucania loreyi* (Duponchel, 1827)	AFM
306	*Pseudaletia unipuncta* (Haworth, 1809)	COS
307	*Orthosia cerasi* (Fabricius, 1775)	CAE
308	*Orthosia cruda* ([Denis & Schiffermüller], 1775)	EUR2
309	*Orthosia gothica* (Linné, 1766)	CAE
310	*Orthosia incerta* (Hufnagel, 1766)	ASE
311	*Orthosia miniosa* ([Denis & Schiffermüller], 1775)	EUR2
312	*Orthosia munda* ([Denis & Schiffermüller], 1775)	CAE
313	*Egira conspicillaris* (Linné, 1758)	CAE1
314	*Lasionycta calberlai* (Staudinger, 1883)	AAP
315	*Peridroma saucia* (Hübner, [1808])	SCO
316	*Axylia putris* (Linné, 1761)	ASE1
317	*Ochropleura leucogaster* (Freyer, [1831])	MED5
318	*Ochropleura plecta* (Linné, 1761)	SCO
319	*Noctua pronuba* (Linné, 1758)	PAL
320	*Paranoctua comes* (Hübner, [1813])	EUM mac
321	*Paranoctua interjecta* (Hübner, [1803])	EUR
322	*Lampra fimbriata* (Schreber, 1759)	EUM
323	*Lampra tirrenica* (Biebinger, Speidel & Hanigk, 1983)	TIR
324	*Euschesis janthe* (Borkhausen, 1792)	EUM
325	*Euschesis janthina* ([Denis & Schiffermüller], 1775)	EUR
326	*Euschesis tertia* (von Mentzer, Moberg & Fibiger, 1991)	MEE
327	*Epilecta linogrisea* ([Denis & Schiffermüller], 1775)	EUM
328	*Megasema c-nigrum* (Linné, 1758)	OLA
329	*Xestia castanea* (Esper, [1798])	EUM
330	*Xestia xanthographa* ([Denis & Schiffermüller], 1775)	EUR2
331	*Cerastis faceta* (Treitschke, 1835)	MEW tra
332	*Euxoa (Euxoa) temera* (Hübner, [1808])	CAE1
333	*Agrotis crassa* (Hübner, [1803])	PAL
334	*Agrotis exclamationis* (Linné, 1758)	PAL
335	*Agrotis ipsilon* (Hufnagel, 1766)	COS
336	*Agrotis puta* (Hübner, [1803])	CEM mac
337	*Agrotis segetum* ([Denis & Schiffermüller], 1775)	SCO

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Conclusioni

In un anno di ricerche si è rilevata la presenza di 337 specie di eteroceri, ripartiti in 14 famiglie (Hepialidae 1, Cossidae 2, Limacodidae 1, Lasiocampidae 4, Sphingidae 10, Drepanidae 3, Thyatiridae 5, Geometridae 110, Notodontidae 12, Thaumetopoeidae 2, Lymantriidae 5, Arctiidae 14, Ctenuchidae 1, Noctuidae 167); mancano dati su tutte quelle famiglie o specie dalle abitudini diurne o la cui raccolta prevede metodi particolari.

Il notevole quantitativo di specie censito pone questa località fra quelle maggiormente conosciute e ricche di specie dell'Italia centrale, nonostante il notevole impatto antropico sull'ambiente. Ciò deve essere, probabilmente, messo in relazione più con la scarsità di lavori condotti finora con costanza durante una intera stagione di volo in una singola località, che all'intrinseca ricchezza faunistica dell'area indagata; infatti biotopi sufficientemente integri sono presenti solo sui versanti e nelle piccole valli caratterizzati da una topografia accidentata dove, però, talvolta arriva il fuoco.

Alla luce dei dati raccolti è possibile fare le seguenti osservazioni:

- Delle specie elencate ben 75 (il 22,3%) sono state rinvenute in un unico esemplare. Questo farebbe supporre che sia notevole il ricambio e che il numero delle specie sarebbe stato certamente incrementato se si fosse continuata la raccolta dei dati anche in anni successivi. Questo dato rende inutile uno studio sui corotipi in quanto esso sarebbe basato su dati rilevati in un troppo breve lasso di tempo.

- La diversità, intesa come numero di specie, si distribuisce durante l'anno in modo da avere due picchi: uno a maggio e l'altro a settembre (fig. 1). In entrambi i casi essi sembrano corrispondere a fasi di passaggio fra le faune stagionali. Una analisi settimanale della diversità (fig. 2) mostra diversi picchi in corrispondenza di periodi favorevoli al volo; le condizioni meteorologiche giornaliere influenzano in maniera determinante l'attività delle specie soprattutto in estate, quando la minore attività si è registrata in corrispondenza di periodi particolarmente freddi e piovosi.

- Il rinvenimento di un esemplare di *Pachypasa otus* (Drury, 1773), di cui in Toscana sono stati raccolti finora solo quattro esemplari durante la seconda metà di agosto fra il '65 e il '74 a Firenze, Boschetto e Scandicci (Mascagni & Casini, 1990), e nota in Italia anche per Puglia, Basilicata, Calabria e Sicilia, potrebbe suggerire che una popolazione si sia insediata stabilmente nella regione in conseguenza di una probabile introduzione artificiale (Bertaccini, Fiumi & Provera, 1995). Resta da verificare se anche in questo caso non ci si trovi di fronte ad una nuova introduzione artificiale della specie.

- Risultano nuove per la Toscana 5 specie:

Operophtera brumata (Linné, 1758), citata per tutte le regioni, ma non ci risultano segnalazioni per la Toscana;

Eupithecia haworthiata (Doubleday, 1856), nota in quasi tutte le regioni settentrionali e centrali, Puglia, Basilicata, Calabria, Sicilia e Sardegna;

Eupithecia virgaureata (Doubleday, 1861), nota in Valle d'Aosta, Trentino, Alto Adige, Lago di Garda, Veneto e Marche;

Phyllophila obliterata Guenée, 1852, conosciuta per Piemonte, Lombardia, Trentino, Romagna, Umbria, Marche e Lazio;

Ctenoplusia accentifera Dufay, 1970, nota per Piemonte, Liguria, Lazio, Abruzzo, Puglia, Basilicata, Calabria, Sicilia e Sardegna;

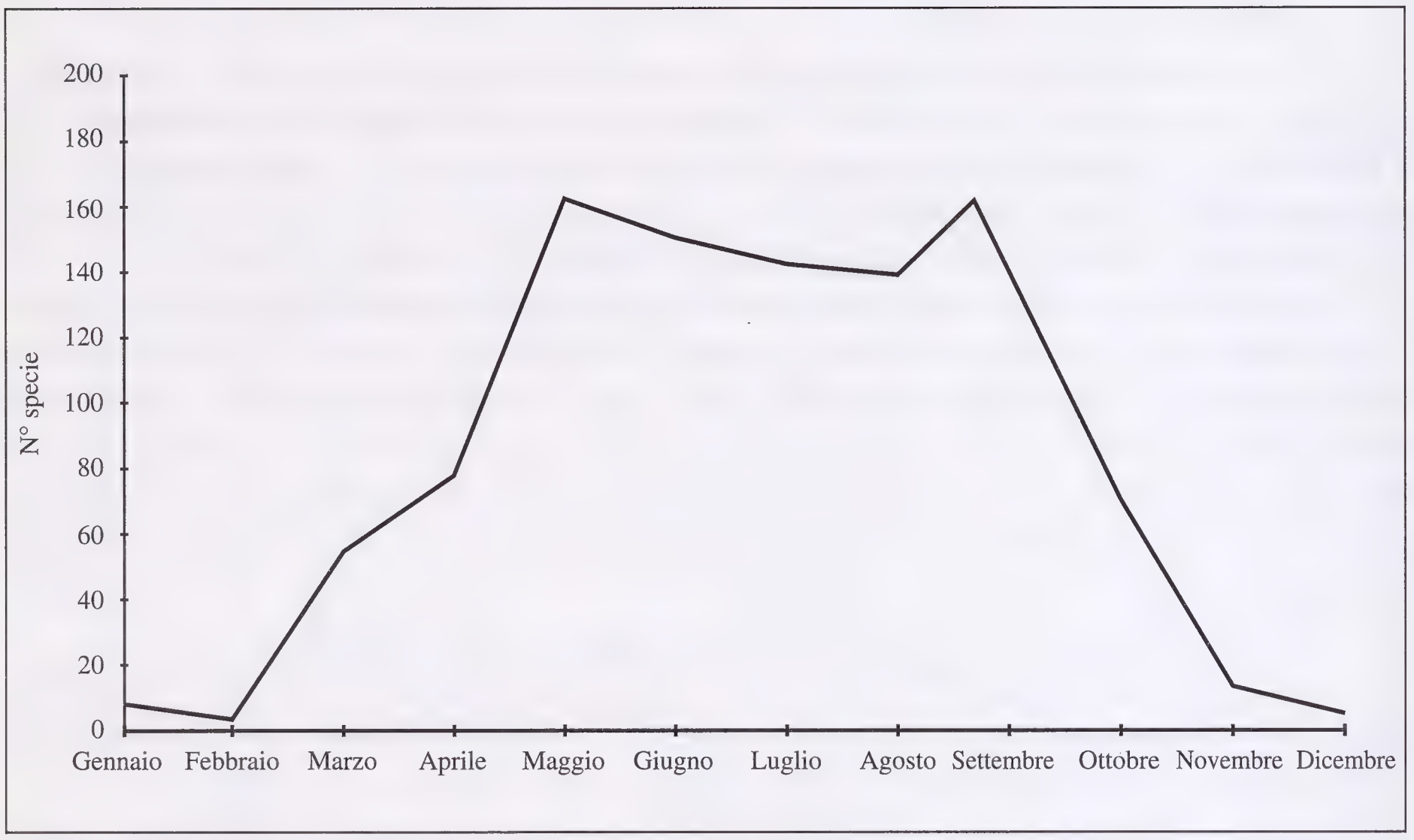

Fig. 1. Variazione mensile della diversità intesa come numero di specie.

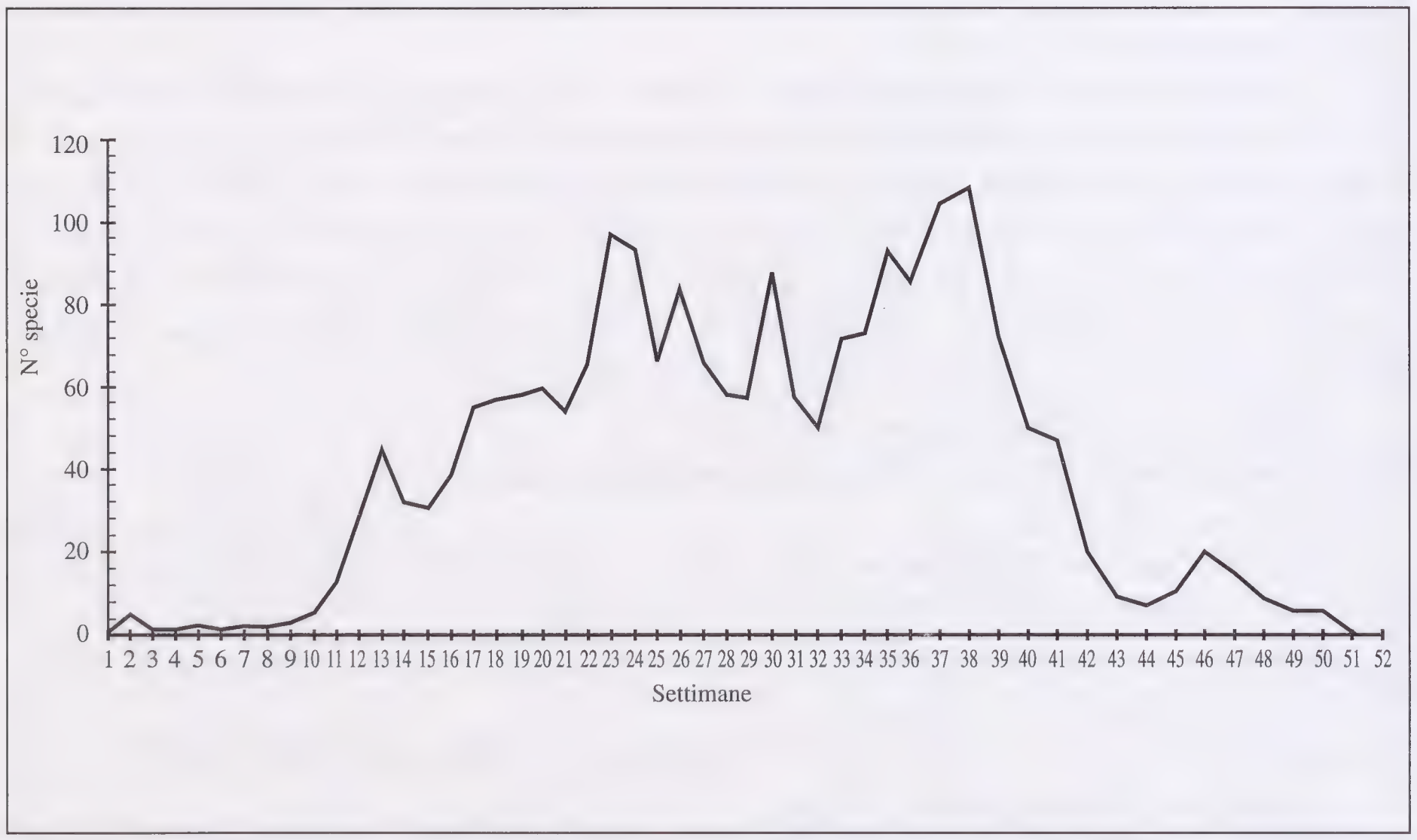

Fig. 2 Variazione settimanale della diversità intesa come numero di specie.

- La cattura di un esemplare di *Autographa bractea* ([Denis & Schiffermüller], 1775), specie tipicamente orofila nota in Toscana per una sola località (Foce a Giovo, m 1700 s.l.m. - Marini & Trentini, 1986), con ampia diffusione nelle regioni alpine e molto sporadica negli Appennini, riveste un particolare interesse sia faunistico che ecologico, essendo stata rinvenuta ad una quota molto modesta.

- Interessanti sono anche i dati fenologici di *Diaphora mendica* (Clerck, 1759) della quale si conosce una sola generazione da aprile a giugno; la raccolta di alcuni esemplari a fine settembre fa supporre che la specie possa, in particolari condizioni, dar luogo a una seconda generazione. Bisognerebbe ora verificare se si tratta di una vera generazione o se lo sfarfallamento di questi individui sia dovuto all'andamento climatico stagionale, con una estate particolarmente fredda, al microclima proprio dell'area di studio o, ancora, se sia stato provocato da cause endogene.

RINGRAZIAMENTI

Vivi ringraziamenti vanno al prof. Paolo Parenzan (Istituto di Entomologia Agraria, Palermo) e al dott. Axel Hausmann (Zoologische Staatssammlung München) per l'aiuto prestatomi nella supervisione della determinazione delle specie.

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Mem. Soc. entomol. ital., 77: 317-357 *31 marzo 1999*

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On the taxonomy and distribution of Italian *Tetramorium* species and their social parasites (Hymenoptera Formicidae)

Abstract - New data on tetramoriine ants in southern Italy are presented, based on recent collections from Sardinia, Sicily, Calabria, Lucania, Apulia and Abruzzi. Numerous records of the socially parasitic genera *Strongylognathus* and *Anergates* lead to significant extensions of the known range for several species. *S. alpinus*, found in Abruzzi, Calabria and Sicily, is new for the Italian fauna. *A. atratulus* is recorded in Lucania and Sicily for the first time. New life history information, including new host species records for *A. atratulus* (*T. diomedeum*), *S. huberi* (*T. impurum*) and *S. testaceus* (*T. brevicorne*), is also provided.

Characterization of species limits through both morphological and enzyme electrophoretic investigations allows several new taxonomic arrangements. *S. cecconii* Emery, 1916 and *S. emeryi* Menozzi, 1921 proved to be synonyms of *S. destefanii* Emery, 1915. Four new synonyms in *Tetramorium* are also established. *T. punctatum* Santschi, 1927 is elevated to species rank, and species status is reinstated for *T. diomedeum* Emery, 1908. Lectotypes of *T. brevicorne* Bondroit, 1918 and *T. punctatum* are designated. A *Tetramorium* species hitherto unrecognized in Italy is reported but not named. Available literature records of the species concerned are critically reviewed, and the resulting distribution patterns in Italy and adjacent regions are discussed.

Riassunto - *Tassonomia e distribuzione delle specie italiane di Tetramorium e dei loro parassiti sociali (Formicidae Myrmicinae).*

Vengono qui segnalati nuovi dati sulle formiche della tribù Tetramoriini sulla base di nuove raccolte in Sardegna, Sicilia, Calabria, Basilicata, Puglia e Abruzzo. Numerosi ritrovamenti dei generi parassiti sociali *Strongylognathus* e *Anergates* hanno portato a significative estensioni dell'areale noto di varie specie. *S. alpinus*, trovato in Abruzzo, Calabria e Sicilia, risulta nuovo per la fauna italiana. *A. atratulus* è stato rinvenuto in Basilicata e Sicilia per la prima volta. Vengono poi fornite nuove informazioni sui costumi di vita e nuove specie ospiti per *A. atratulus* (*T. diomedeum*), *S. huberi* (*T. impurum*) e *S. testaceus* (*T. brevicorne*).

La caratterizzazione dei limiti specifici attraverso studi sia morfologici che elettroforetici ha consentito nuove sistemazioni tassonomiche. *S. cecconii* Emery, 1916 e *S. emeryi* Menozzi, 1921 sono stati dimostrati sinonimi di *S. destefanii* Emery, 1915. Vengono anche stabilite quattro nuove sinonimie nel genere *Tetramorium*. *T. punctatum* Santschi, 1927 viene elevato a specie distinta e viene rivalutato a buona specie *T. diomedeum* Emery, 1908. Vengono poi designati i lectotipi di *T. brevicorne* Bondroit, 1918 e di *T. punctatum*. Una specie ancora inedita di *Tetramorium* dell'Italia meridionale viene qui citata ma non descritta. I dati di letteratura riguardanti le specie qui trattate vengono rivisti criticamente e le distribuzioni in Italia e regioni adiacenti vengono quindi discusse.

Key words: Formicidae, *Tetramorium*, *Strongylognathus*, *Anergates*, Italy, taxonomy, ecology, distribution, social parasites

INTRODUCTION

The myrmicine ant tribe Tetramoriini is best represented in the Old World Tropics, but a considerable number of species have successfully adapted to temperate conditions within the Palaearctic biomes. Only a few species occur in the New World. The extre-

mely diverse genus *Tetramorium* Mayr encompasses the great majority of described taxa, while the other six genera presently recognized play a less important role with respect to species numbers (Bolton, 1976). A complete cladistic analysis of tetramoriine ants may well reveal that these additional genera, three or four of them established for social parasites, in fact are ingroups relative to *Tetramorium* The usually large colonies of *Tetramorium* can be found in virtually all kinds of terrestrial habitats, and a number of arboreal species is also known from tropical rainforests. Bolton (1976, 1977, 1979, 1980) revised the taxonomy of *Tetramorium* in all faunal regions except the Palaearctic, where systematics of the genus still remain in complete disarray. Over 130 names assignable to *Tetramorium* (including many infrasubspecific entities and other unavailable names) have been erected for Palaearctic forms, 55 of which were listed by Bolton (1995) as currently residing in species rank. It has been predicted that after a taxonomic revision the number of valid *Tetramorium* species will be about 25 in the Palaearctic (Bolton, 1980), but this will certainly prove considerably underestimated. Schulz (1996) gave an estimate of approximately 100 species distributed in the Palaearctic region.

Tetramoriine ants of Italy have received little attention after their treatment in comprehensive works on the ant fauna of this country by Emery (1916) and Baroni Urbani (1971). Occasionally a few faunistic papers dealing with the region have contributed some useful information to the knowledge of this taxonomically difficult group (Casewitz-Weulersse, 1974; Le Moli & Rosi, 1991; Mei, 1995; Poldi, 1980, 1994; Rigato & Sciaky, 1989; Scupola, 1994). The large number of 17 availably named *Tetramorium* forms reported from Italy (Baroni Urbani, 1971; Poldi et al., 1995; Mei, 1995) gives rise to questions about their taxonomic validity. In addition, Italy is comparatively rich in social parasites that depend upon the workers of free-living *Tetramorium* species. Whereas most of these parasites are slave-raiders of the genus *Strongylognathus* Mayr, one of them, *Anergates atratulus* (Schenck, 1852), is found as a rare inquiline in *Tetramorium* nests. The tribal placement of the latter species has been a subject of debate. Recently Baur et al. (1996) provided evidence based on DNA studies that the genus *Anergates* Forel is best placed in Tetramoriini, as are the other social parasites associated with *Tetramorium* hosts. No less than eight described species of *Strongylognathus* have been considered to belong to the Italian fauna (Poldi et al., 1995). However, it still remains an open question how many of these are distinct taxa, since partial revisions of the *S. huberi* group (sensu Bolton, 1976) by Pisarski (1966) and Baroni Urbani (1969) did not sufficiently clarify the taxonomy of the genus.

We report here on recent collections of *Tetramorium* species and some of their social parasites from southern Italy dating mainly from 1993 and 1994, including 20 new records of *Strongylognathus* and two of *Anergates*. The data were collected from the regions Sardinia, Sicily, Calabria, Lucania, Apulia and Abruzzi, but some additional findings of socially parasitic species from other parts of Italy are included. This new material together with studies of previous collections sheds new light on taxonomic problems regarding the *Tetramorium* and *Strongylognathus* fauna of the country.

ORGANIZATION OF SPECIES ACCOUNTS

Lists of synonyms are mainly composed of names attributed to Italian forms.

Rather than giving all citations for the relevant names (this has been done by Baroni Urbani, 1971), we confine our compilation to synonyms and elevations in rank. Usually, large samples of several nests were taken, so only the locality was listed and no counts of individuals are shown. The samples were collected by the three authors except when otherwise indicated. In many cases, sexuals of *Tetramorium* were reared in the laboratory from pupae or prepupae extracted from the nests. As females (rarely also males) are often indispensable for species determination, this technique deserves to become more widely applied. Males were investigated only incidentally in the present study; little taxonomically useful information about this morph can be gained from the literature as yet. We also list additional specimens investigated by us, including type material of many questionable taxa from NHMB, MCG, MCV, MHNG and MCZ (for abbreviations see below).

In the main text, we summarize both morphological and biochemical characters important for species recognition. The determination of *Tetramorium* species on a morphological basis is extremely complicated. It still appears difficult to establish a satisfactory key for the Italian *Tetramorium* species, and for now we have refrained from the attempt. A previous study revealed the potential usefulness of isozyme electrophoresis in taxonomic investigations on the Tetramoriini (Sanetra et al., 1994). Polymorphic loci detected in that work were examined and used as additional characters (Tab. 4 pag.333). The designation of enzyme electromorphs follows Sanetra et al. (1994), and new variants are assigned accordingly. We found that in *Tetramorium* diagnostic electromorphs are often present that permit species distinction more reliably than morphology. Unfortunately, electrophoretic patterns in *Strongylognathus* are rather uniform and do not aid in detecting species boundaries within the *S. huberi* group (see also Sanetra et al., 1994).

As far as possible we provide information about ecology and biology of each species. Further, the known range of each species, with emphasis on Italy, is commented with reference to the available literature data. For the social parasites, short statements on nest composition, host species and habitat structure accompany each record.

Abbreviations

a) Museums

NHMB	Naturhistorisches Museum, Basel, Switzerland
MCG	Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy
MCV	Museo Civico di Storia Naturale, Verona, Italy
MHNG	Muséum d'Histoire Naturelle, Genève, Switzerland
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge (Mass.), USA

b) Enzyme systems

Gpi	glucose-6-phosphate isomerase
G3pdh	glycerol-3-phosphate dehydrogenase
Idh	isocitrate dehydrogenase
Mdhp	malate dehydrogenase (NADP+)
Mdh	malate dehydrogenase (NAD)
Pgm	phosphoglucomutase

c) Measurements

PW	width of petiolus

PPW width of postpetiolus
ML length of mesosoma
HW head width

COMMENTED LIST OF *TETRAMORIUM* SPECIES

Tetramorium caespitum (Linnaeus, 1758) [Figs. 1, 13]

Tetramorium caespitum caespitum var. *fusciclava* Emery, 1925 (unavailable name)
Tetramorium caespitum v. *fusciclavum* Consani & Zangheri, 1952: **syn. nov.**

In the first description, Emery (1925) does not state which of the mentioned features of var. *fusciclava* are suitable for distinction from typical *T. caespitum*. Indeed all characters given clearly fall within the range of variation observable in that species. The first use as subspecies *fusciclavum* by Consani & Zangheri (1952) represents only a listing without any morphological information. Not surprisingly, the taxon was found upon examination of two syntypes to be a straightforward synonym of *T. caespitum*.

COLLECTING DATA:
Sardinia - Prov. Sassari, Lago del Coghinas 10 km NW Oschiri, ca. 200m, 2.V.1994, M. Sanetra leg. [tentatively identified as *T. caespitum*]; Prov. Sassari, Monte Limbara, 1000-1100m, 3.V.1994, M. Sanetra leg.;

Sicily - Prov. Messina, Monti Nebrodi, road N. 289 Cesaró-S. Fratello, Portella Femmina Morta, ca. 1500m, 12.V.1994, M. Sanetra leg. [host of *S. alpinus*];

Calabria - Prov. Reggio di Calabria, 2 km W Melito di Porto Salvo, 14.V.1994; Prov. Reggio di Calabria, Aspromonte, Montalto summit, 1950m, 16.V.1994 [host of *S. alpinus*]; Prov. Cosenza, Sila Grande, S shore Lago Arvo, ca. 1200m, 18.V.1994 [host of *S. testaceus*]; Prov. Cosenza, Sila Grande, Monte Pettinascura 6 km NW Germano, ca. 1600m, 18.V.1994; Prov. Cosenza, Sila Grande, Monte Botte Donato, ca. 1800m, 18.V.1994; Prov. Cosenza, Capo Trionto 3 km NW Mirto Crosía, 20.V.1994; Prov. Cosenza, Monte Pollino, 4 km NW Morano Calabro, 1000-1100m, 21.V.1994.

OTHER INVESTIGATED MATERIAL: Sicily, M. Etna, 1450m, 30.III.1924, H. Kutter leg. 3☿☿ (NMB) [filed as *T. semilaeve*]; Emilia-Romagna, Riccione near Rimini, L. Emery leg. 2☿☿ (MCG), syntypes of *T. caespitum fusciclavum* Consani & Zangheri.

This common species is widespread throughout Eurasia, though nothing detailed is known about the eastern populations. In central Europe it generally prefers lowland habitats mostly with sandy soil (Cammaerts et al., 1985; pers. obs.) and is almost absent above 1500m, where only its probable sibling species, *T. impurum*, occurs. From the information available it is clear that *T. caespitum* is obligatorily monogynous (see also Kutter, 1977).

Among the Italian species, *T. caespitum* and *T. impurum* are immediately recognizable by their large females (see Tab. 3) with the mesonotum strongly bulging, thereby obscuring the pronotum in dorsal view (Fig. 13). *T. caespitum* workers show extreme variability both between and within populations so that much confusion arises in determination. Specifically, we have been unable to distinguish *T. semilaeve* from small, weakly sculptured *T. caespitum* on worker morphology. López (1991) has commented on this problem and provided useful characters, especially the different shape of the petiolus (see Figs. 1, 3, and Fig. 2 in López

1991). These are nevertheless difficult to apply and have not extensively been studied outside the Iberian Peninsula. As in other parts of Europe, southern Italian *T. caespitum* are clearly characterized by male morphology and a unique *Mdhp* electromorph (Tab. 4 pag. 333). Details of differentiation from *T. brevicorne* of Sardinia are given in that species account.

The distribution pattern of *T. caespitum* in Calabria and Sicily evident from our samples is much different from that observed in central Europe. The species occurs either on cultivated land near the coast, with workers very large in size, or on mountain meadows above 1000m, there replacing *T. impurum* from farther north. It seems well possible that the coastal form is a recent colonizer which can compete with autochthonous species, like *T. semilaeve*, only in severely altered habitats.

Among the surveyed colonies from the southern mountains, we found three which deviated from all other electrophoretically investigated *T. caespitum* by exhibiting a unique *Mdh* electromorph (Tab. 4 pag. 333). Such colonies were collected from the Nebrodi mountains (Sicily), the Sila Grande, and the M. Pollino area (Calabria), occurring syntopically with usual *T. caespitum* at least at the two first mentioned localities. The apparent absence of heterozygotes suggests that a cryptic species may be involved, but further study is needed.

The presence of *T. caespitum* in Sardinia was questioned by Emery (1916) and Baroni Urbani (1971) who asserted that it is completely replaced by *T. brevicorne*. Hence, the latter author listed all previous records from Sardinia under "*T.* prope *caespitum*". However, confirmed by genital morphology and electrophoresis our investigations clearly show the existence of *T. caespitum* on that island, even though it appears uncommon there. Its discovery in a remote undisturbed place at Monte Limbara renders unlikely that the species has been newly introduced to Sardinia in historical times. The apparent fixation of a *G3pdh* electromorph in that population different from the one on the mainland (Tab. 4) further supports this point of view.

Tetramorium impurum (Förster, 1850)

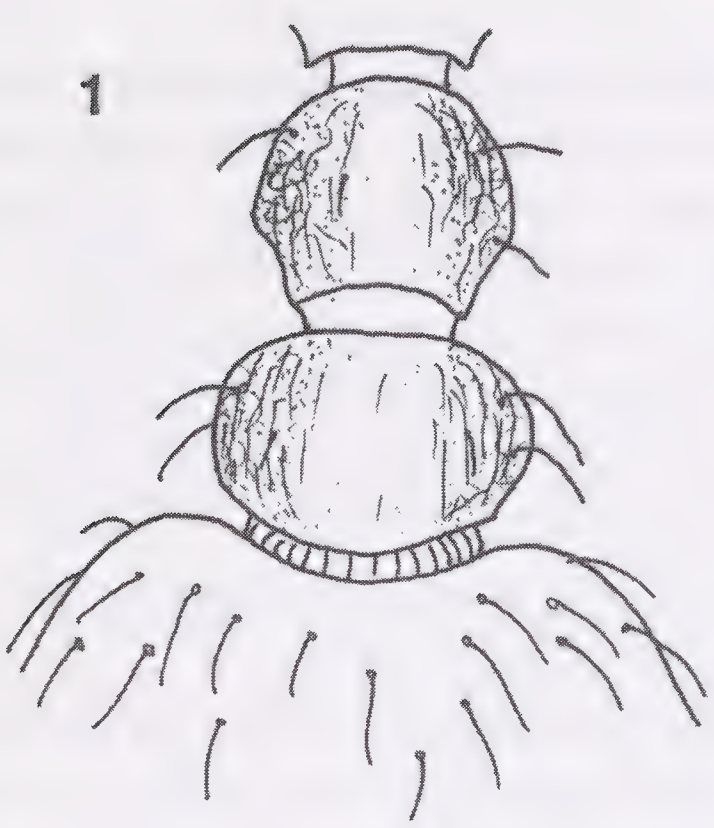
Tetramorium caespitum v. *penninum* Santschi, 1927: **syn. nov.**

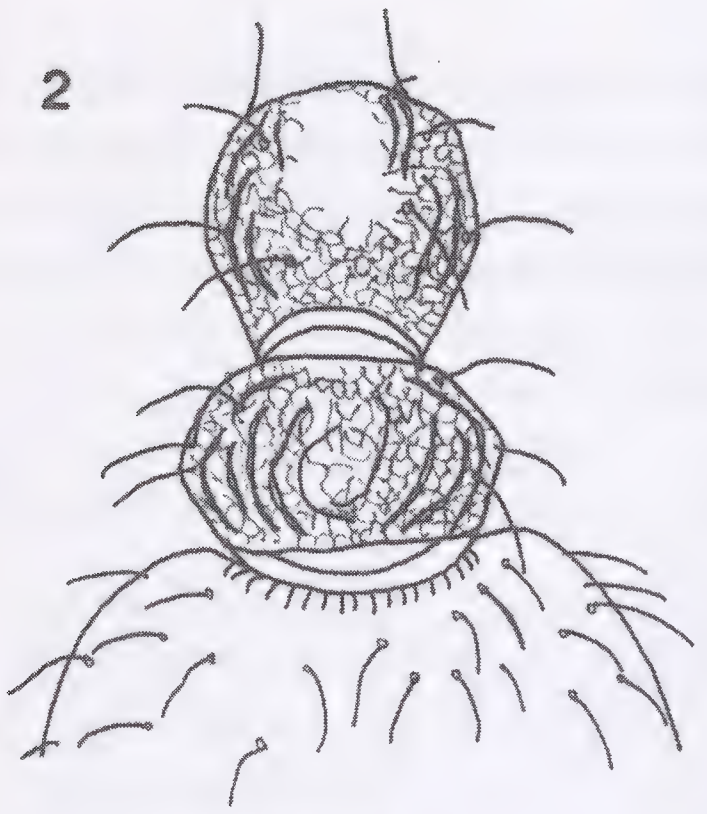
The syntype ☿☿ of *T. caespitum* v. *penninum,* from a colony infested by Strongylognathus alpinus, show morphological features more typical for *T. impurum* than for *T. caespitum* (comparatively strong and extensive rugosity particularly on the nodes, as already pointed out in the original description). As explained below, ☿ morphology alone is not sufficient to completely exclude possible synonymy with *T. caespitum* in this case. However, intensive collecting by the authors and others have proven that, in the Alps, *T. caespitum* only exceptionally occurs at the altitude of the type locality of v. *penninum* and does not serve as host species for *Strongylognathus alpinus* in this area (see also *S. alpinus* section).

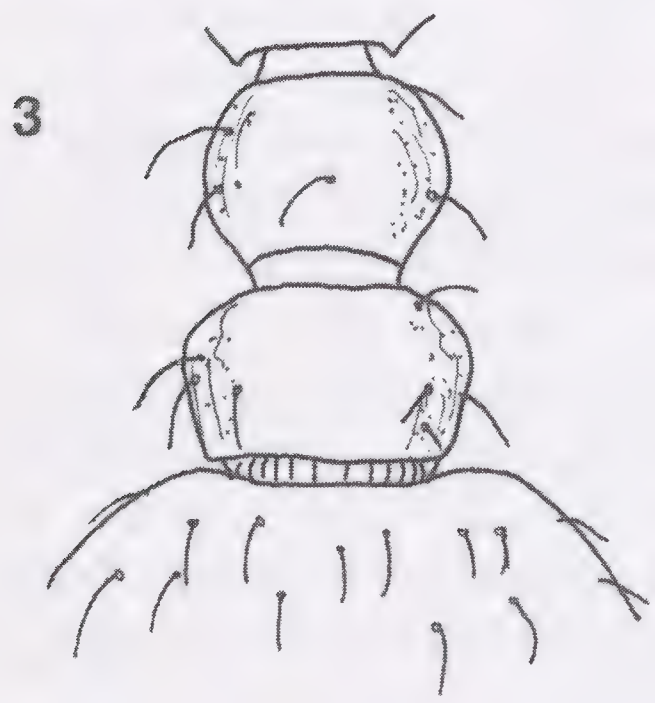
COLLECTING DATA:

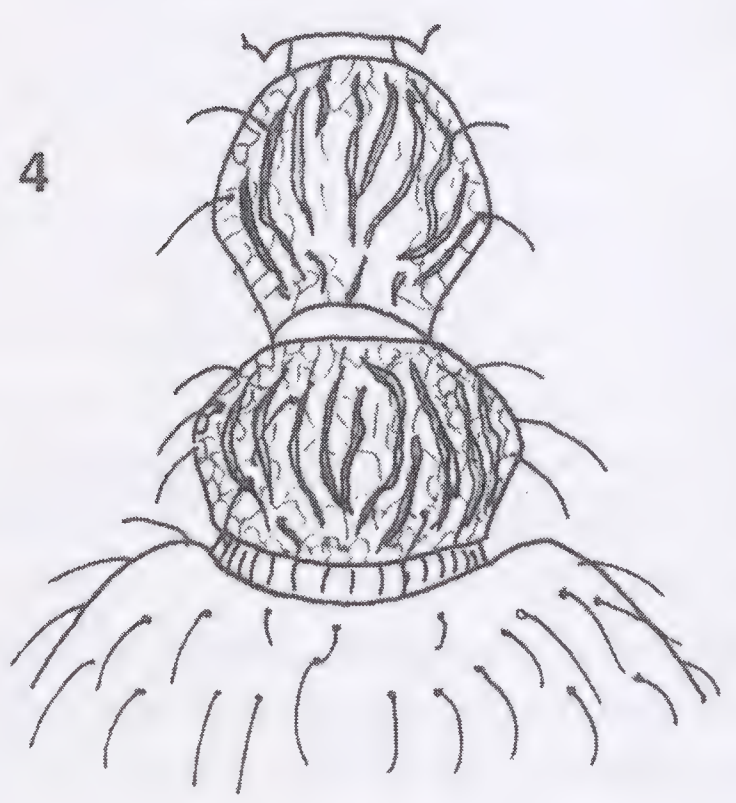
Calabria - Prov. Cosenza, Monte Pollino, 4 km NW Morano Calabro, 1000-1100m, 21.V.1994 [host of *S. testaceus* and *S. huberi*];

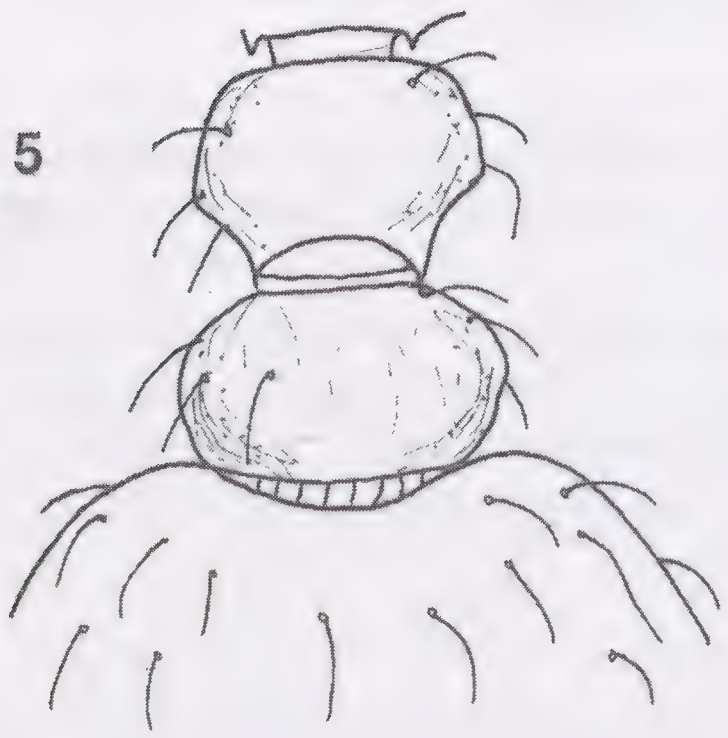
Lucania - Prov. Potenza, Monte Pollino, near Rifugio De Gasperi, ca. 8 km SE Rotonda, ca. 1600m, 21.V.1994 [host of *A. atratulus*];

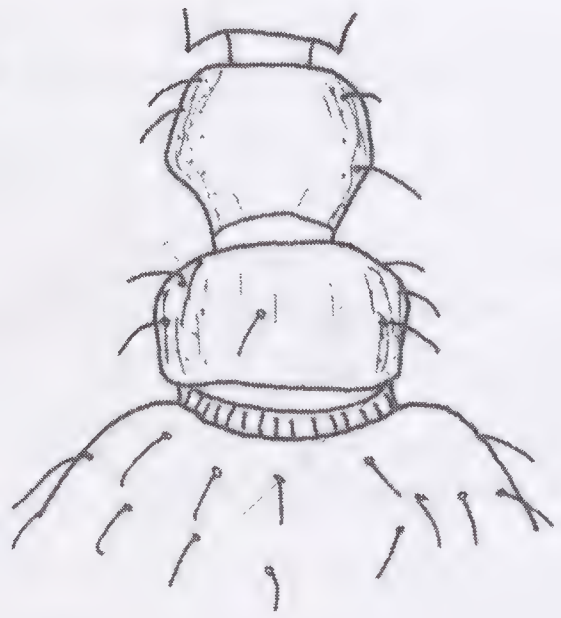












Figs. 1-6. Petiolar nodes (dorsal view) of *Tetramorium* ☿☿: 1 - *T. caespitum;* 2 - *T. brevicorne;* 3 - *T. semileave;* 4 - T. sp. "Gargano"; 5 - *T. diomedeum;* 6 - *T. punctatum.* Drawings by A. Schulz; scale bar 0.3 mm.

Apulia - Prov. Foggia, Gargano, road N. 528, ca. 2 km NE intersection to Carpino, ca. 700m, 23.V.1994, R. Güsten & M. Sanetra leg. [host of *S. huberi*]; Prov. Foggia, Gargano, road Monte S. Angelo-Carpino 1,5 km NW intersection to Vico del Gargano, ca. 700m, 24.V.1994, R. Güsten & M. Sanetra leg. [host of *S. destefanii*];
Abruzzi - Prov. L'Aquila, Gran Sasso, ca. 6 km NE Castel del Monte, ca. 1600m, 30.V.1994, M. Sanetra leg. [host of *S. alpinus*].

Other investigated material: Switzerland, Zermatt, ca. 1600m, W.M. Wheeler leg. 4☿☿ (NMB), syntypes of *T. caespitum penninum* Santschi [host of *S. alpinus*].

The species is locally frequent in central Europe and the Alps, where it prefers higher elevations and more clayey or loamy soils than *T. caespitum*. Like that species, it is monogynous, though there is one record of polygyny from the Alps (Buschinger, 1974). *T. impurum* is probably widely distributed in other parts of the Palaearctic but the actual range remains insufficiently known for several reasons: its status as a distinct species has been confirmed as late as about twenty years ago (Kutter, 1977; Cammaerts et al., 1985), and workers of *T. impurum* are still very difficult to distinguish from those of *T. caespitum*. The latter are generally less strongly sculptured with much intraspecific variation and transition to *T. impurum*. Morphometric characters and differences of sculpture elaborated recently (Seifert, 1996), though constituting a progress, do not identify all samples correctly and appear to be less useful outside central Europe. Females of *T. impurum* are said to possess a slightly less bulging mesonotum, stronger sculpture and to be somewhat smaller and lighter in colour (Kutter, 1977; Cammaerts et al., 1985). These differences, however, are statistical and apparently of little value for species distinction in southern Italy. Therefore reliable assignment of our samples to either *T. caespitum* or *T. impurum* had to be based on the readily distinguishable male genitalia (see Fig. 1 in Cammaerts et al., 1985) and different electromorphs for *Mdhp* (Tab. 4 pag. 333; see also Sanetra et al., 1994).

T. impurum was first mentioned for Italy by Poldi (1980) from Piedmont, but the record, being based on a single worker, seems very doubtful. Indeed it still stands as the only published Italian record of the species. Nevertheless, Poldi et al. (1995) include north and south Italy and potentially Sicily in its stated range. Even in central Europe, *T. impurum* shows a decidedly montane distribution compared to *T. caespitum*, and our new records suggest that south of the Alps, typical *T. impurum* are confined to high elevations. In the Alps and probably also the Appennines, it is the only *Tetramorium* species occurring above 1500m. However, in the mountains of Calabria and Sicily, a form assignable to *T. caespitum* seems to replace *T. impurum* ecologically, and for this reason we question the reported presence of *T. impurum* in Sicily (Poldi et al., 1995).

Individuals from three nest samples from central Gargano Peninsula are close to *T. impurum* in worker morphology and electrophoresis at the loci presented in Tab. 4 pag. 333. However, climatic conditions on the Gargano strongly differ from the high altitude sites typically inhabited by *T. impurum*. Electrophoretic patterns obtained from a recently examined hexokinase locus were not concordant with those of *T. impurum*, though there are not yet enough data to evaluate the taxonomic significance of these electromorphs. Certain samples collected at the island of Elba at similar heights probably belong to the same entity. More detailed studies are required to determine if *T. impurum*

is ecologically more adaptable than evident at present, or if the mentioned records belong to a separate, yet unrecognized, species.

Tetramorium diomedeum Emery, 1908 [Figs. 5, 9]

Tetramorium caespitum var. *diomedea* Emery in Cecconi, 1908
Tetramorium diomedaea[sic] Emery: Schembri & Collingwood, 1981
Tetramorium caespitum var. *bariensis* Forel, 1911: syn. by Emery, 1916

COLLECTING DATA:
Sicily - Prov. Siracusa, 5 km NE Canicattini Bagni, ca. 300m, 17.V.1993, M. Sanetra leg. [host of *A. atratulus*]; Prov. Siracusa, ca. 5 km NE Floridia, ca. 100m, 11.V.1994, M. Sanetra leg.; Prov. Catania, M. Etna, ca. 5 km N Ragalna 1000-1200m, 12.V.1994, M. Sanetra leg.;

Calabria - Prov. Reggio di Calabria, near Roghudi, 25 km E Reggio di Calabria, 600-700m, 15.V.1994; Prov. Catanzaro, Terme Caronte, ca. 2 km NW Sambiase, 200-300m, 17.V.1994; Prov. Crotone, 3 km E Savelli, ca. 700m, 19.V.1994; Prov. Crotone, 2 km NW Umbriatico, ca. 350m, 19.V.1994; Prov. Cosenza, Monte Pollino, 4 km N Morano Calabro, ca. 800m, 21.V.1994; Prov. Cosenza, Monte Pollino, 1 km NW Frascineto, ca. 500m, 21.V.1994.

OTHER INVESTIGATED MATERIAL: Sicily, Pellegrino/Palermo, III.1924 (probably H. Kutter leg.) 3☿☿ (NMB); Sicily, V.1926 (probably H. Kutter leg.) 3☿☿ (NMB); Calabria, Sambiase, IV.1920, C. Menozzi leg. 6☿☿, 1♀ (NMB); Apulia, Tremiti Islands, Capraia, G. Cecconi leg. 2☿☿, 2♀♀, 1♂ (MCG), syntypes of *T. caespitum diomedeum* Emery; Apulia, Bari, A. Forel leg. 5 ☿☿ (NMB), syntypes of *T. caespitum bariense* Forel.

The description of this taxon (commonly incorrectly spelled "*diomedaeum*") was based upon material from the Tremiti Islands (Apulia). In the original account, it was placed close to *T. ferox* Ruzsky, 1903 from eastern Europe because of the wide and short petiolar nodes in females. Whereas Schembri & Collingwood (1981) and Agosti & Collingwood (1987) treated *T. diomedeum* as a distinct species, others (e.g., Radchenko, 1992b) relegated it into synonymy with *T. ferox*. Comparisons of typical *T. diomedeum* from southern Italy with female syntypes of *T. ferox* (in MHNG and MCG) revealed some differences, several

Tab. 1: Differences between ☿☿ of *T. diomedeum* and *T. semilaeve*

	PW/ML	PPW/ML
T. diomedeum	0.316 ± 0.009	0.360 ± 0.014
T. semilaeve	0.281 ± 0.008	0.323 ± 0.009

(for both species, based on 2 specimens each from 5 localities in Sicily and Calabria)

east European localities, probably belonging to *T. ferox* (in NMB), strongly differed from 2 syntype workers of *T. ferox* (in MCG) strongly differed from Italian material, especially in sculpture. We therefore consider *T. diomedeum* a valid species, a conclusion which is additionally supported by electrophoretic data.

It does usually not pose any problem to identify *T. diomedeum* among its southern Italian congeners. The enlarged petiolar nodes in females (Fig. 9) are found otherwise only in *T. meridionale*, but less marked (Fig. 10). Moreover, the latter species is easily recognizable by transverse striations on the occiput. The nodes in *T. diomedeum* workers also are somewhat wider than in the similar species (see Tab. 1 and compare Figs. 3, 5, 6). Workers are large and very weakly sculptured, appearing robust and more shiny in comparison with *T. semilaeve*. While sometimes single workers of these two species are not safely assignable without taking measurements of the petiolar nodes, differentiation of field nests is possible for the experienced myrmecologist in most cases. Levels of enzyme divergence among *T. diomedeum, T. meridionale* and *T. semilaeve* are low. However, *T. diomedeum* shows a phenomenon here referred to as "fixed heterozygosity". At three loci certain alleles were always found together in all individuals studied (Tab. 4 pag. 333), producing the typical heterozygous banding patterns. This peculiarity, though not yet understood, appears to be a species-characteristic feature.

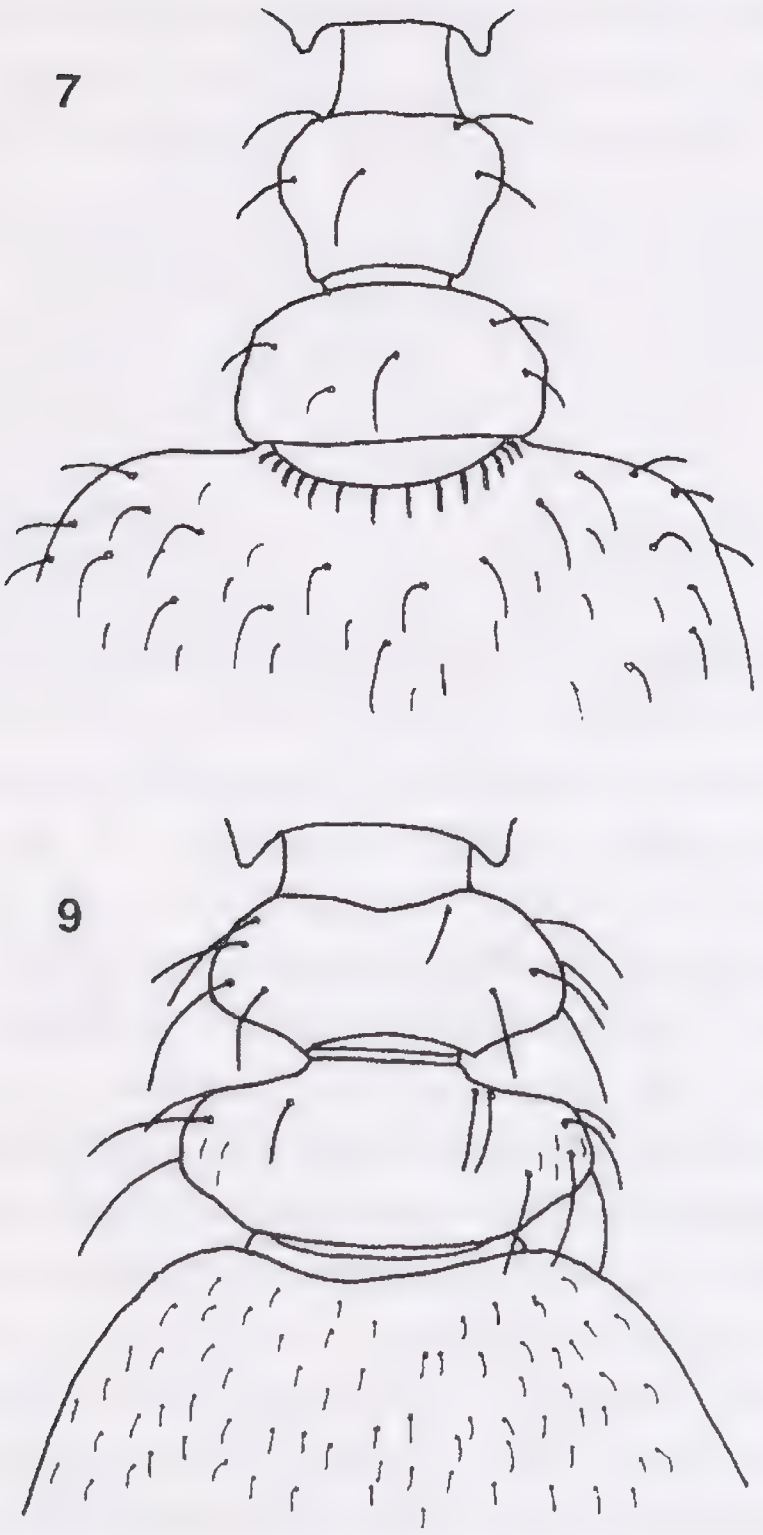
It has been stated (Baroni Urbani, 1964, 1968a, 1971) that samples of the *T. ferox* group (sensu Radchenko, 1992a) from Apulia, Sicily and Malta constitute taxa distinct from each other and from nominotypical *T. diomedeum*. Both morphological and electrophoretic results of our investigations yielded no reasons to recognize more than one species of this group in southern Italy, which most probably extends to Malta without noticeable differentiation (worker material studied, including electrophoresis, from the island of Gozo, Malta, M. Sanetra leg.). Consequently, the synonymy of var. *bariensis* Forel, 1911 from Apulia with *T. diomedeum* established by Emery (1916) should be upheld.

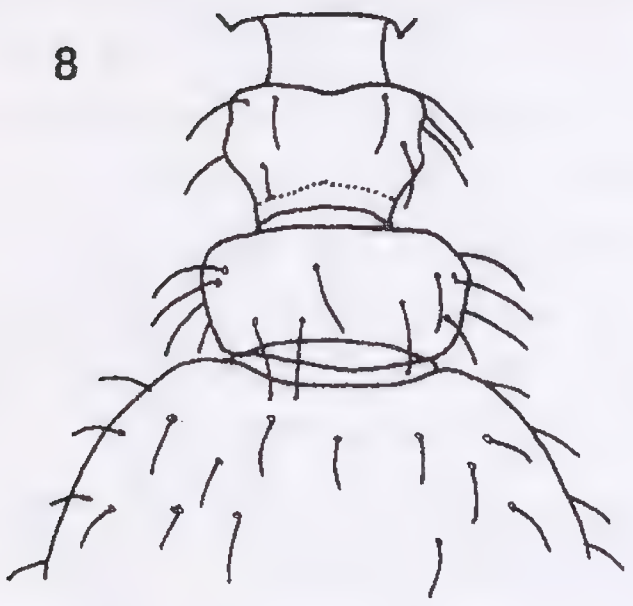
The distribution of *T. diomedeum* in Italy comprises at least the southern regions Sicily, Calabria and Apulia, and although there are no present records, the species, nearly with certainty, can be expected to occur in Campania and Lucania, too. As evident for some other species confined to the southern Mediterranean, there exists a northern outpost at M. Cònero near Ancona (Marche) on the Adriatic coast (Baroni Urbani, 1968b). The single record from Sardinia by Krausse (1912) is highly doubtful in that the species has never been found on the island since then. Possibly for that reason, Poldi et al. (1995) ignored the record in their recent checklist of Italian ants. *T. diomedeum* is a characteristic ant species of the Mediterranean garrigue, only moderately common in general but abundant locally. On one occasion a nest containing two dealate females was discovered, suggesting that the species might be oligogynous.

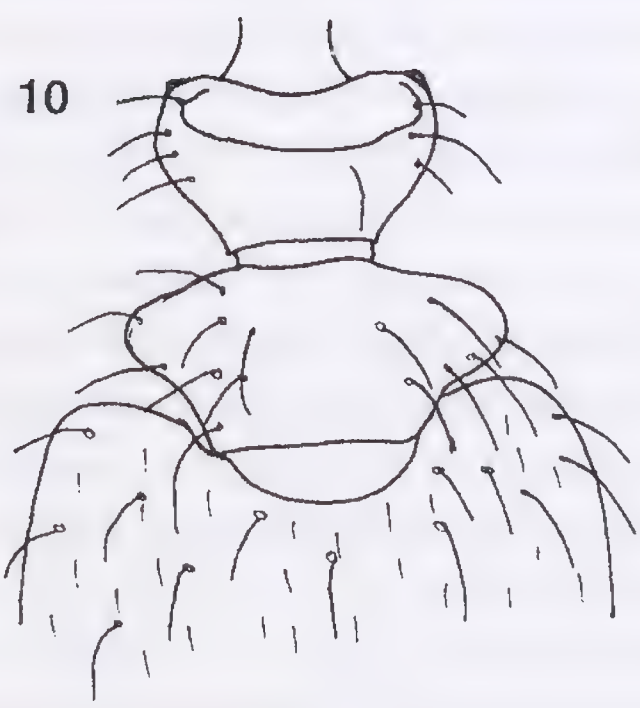
Apart from Italy, *T. diomedeum* has been cited for Greece (Agosti & Collingwood, 1987), Israel and the Middle East (Schembri & Collingwood, 1981). We have found that female and worker material from Greece (Peloponnese) and western Turkey (A. Schulz leg.) cannot be told apart from Italian samples. *T. ferox* var. *laevior* Menozzi, 1936 from the European part of Turkey, also recorded from Rhodes (Greece), will probably prove to be a synonym. Thus, *T. diomedeum* may well be of Pontomediterranean origin.

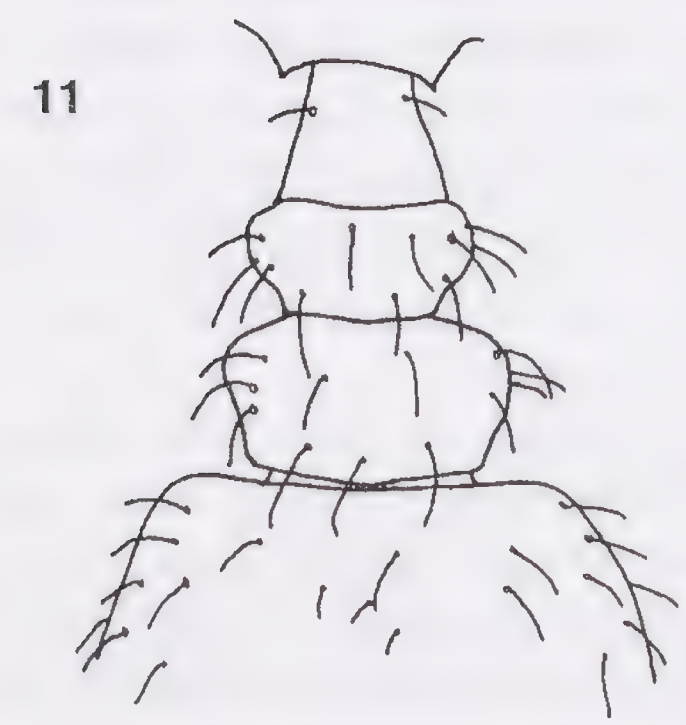
Tetramorium meridionale Emery, 1870 [Fig. 10]

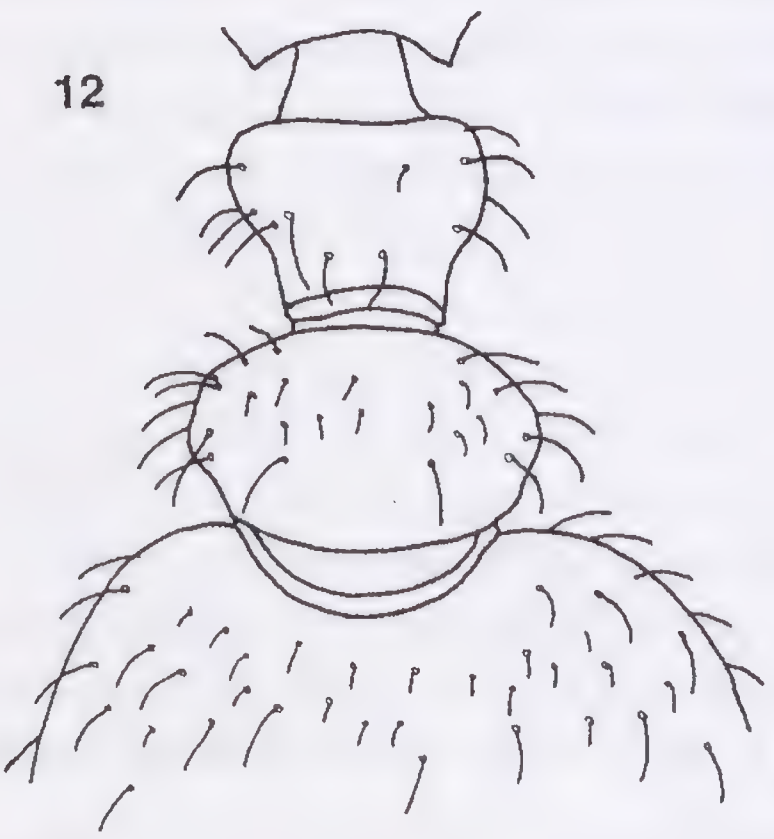
COLLECTING DATA:
Sardinia - Prov. Sassari, Lago del Coghinas ca. 10 km NW Oschiri, ca. 200m, 2.V.1994, M. Sanetra leg.; Prov. Nuoro, ca. 5 km S Bitti, ca. 600m, 4.V.1994, M. Sanetra leg.; Prov. Nuoro, Lago











Figs. 7-12. Petiolar nodes (dorsal view) of *Tetramorium* ♀♀ (sculpture omitted): 7 - *T. semilaeve*; 8 - *T. punctatum* (lectotype); 9 - *T. diomedeum*; 10 - *T. meridionale*; 11 - *T. brevicorne* (lectotype); 12 - *T.* sp. "Gargano". Drawings by A. Schulz; scale bar 0.3 mm.

Alto del Flumendosa near Stazione di Villagrande, ca. 800m, 5.V.1994, M. Sanetra leg.; Prov. Nuoro, ca. 5 km W Seúlo, 700-800m, 6.V.1994, M. Sanetra leg.

OTHER INVESTIGATED MATERIAL: Sardinia, Sorgono, 14.III.1913, collector not given, 3☿☿ (MCG), mislabeled as *T. brevicorne*.

This comparatively distinct species has never been involved in the huge taxonomic difficulties concerning the Palaearctic *Tetramorium*, since females and workers bear an unmistakable transversal striation on the occiput. However, as found out by López (1988), in a minority of workers from some colonies this feature is absent, making them look very similar to *T. semilaeve*. Hints of transversal rugosity may also be traced on the heads of single workers in some other species, including *T. semilaeve* (we have two such samples from Sardinia; see also López, 1988). The investigation of larger samples from the same colony is recommended in such cases. Females differ strongly from *T. semilaeve* in having the petiolar nodes enlarged (though not quite as much as in *T. diomedeum*: Figs. 9, 10). Differentiation in electromorphs at the investigated loci is of low value for species identification (Tab. 4 pag. 333).

T. meridionale shows a patchy distribution in the Mediterranean region. Records are so far available from the Spanish mainland, the Baleares (López, 1988; Tinaut, 1989; Schulz, unpubl.), southern France and Corsica (Bondroit, 1918; Casewitz-Weulersse, 1990). There are also scattered reports of the species from localities in eastern Europe and the Middle East which appear highly doubtful. In Italy, *T. meridionale* has been quoted from Sardinia, most islands of the Tuscanian Archipelago and few localities on the mainland (Emery, 1916; Baroni Urbani, 1971; Le Moli & Rosi, 1991; Schulz, unpubl.). The southernmost records stem from Sambiase di Calabria (Menozzi, 1921) and the island of Pantelleria (Mei, 1995), but no record from Sicily is presently at hand. On the mainland the species is generally both local and rare. Interestingly, it is much more common and evenly distributed on some islands of the Mediterranean, dominating over *T. semilaeve* in Sardinia and Elba in many places (Sanetra, unpubl.). Explanations for this peculiar distribution pattern are not yet known. As a striking biological feature *T. meridionale* displays a marked polygyny: up to ten queens were extracted from some colonies of Sardinia and Elba.

Tetramorium semilaeve André, 1883 [Figs. 3, 7]

Tetramorium caespitum var. *semilaeve* André, 1883
Tetramorium semilaeve André: de Dalla Torre, 1893
Tetramorium semilaeve André v. *siciliense* Santschi, 1927: **syn. nov.**

COLLECTING DATA:
Sardinia - Prov. Sassari, Fiume Coghinas, ca. 8 km NE Perfugas, ca. 100m, 2.V.1994, M. Sanetra leg.; Prov. Nuoro, ca. 5 km S Bitti, ca. 600m, 4.V.1994, M. Sanetra leg.; Prov. Nuoro, road N. 125 Dorgali-Baunei, ca. 13 km NW Punta Genna Coggina, 800-900m, 4.V.1994, M. Sanetra leg.; Prov. Nuoro, Lago Alto del Flumendosa, near Stazione di Villagrande, ca. 800m, 5.V.1994, M. Sanetra leg.;

Sicily - Prov. Catania, Acireale, 30m, 29.V.1993, M. Sanetra leg.; Prov. Catania, ca. 5 km W Ramacca, ca. 400m, 10.V.1994, M. Sanetra leg.; Prov. Catania, M. Etna, ca. 5 km N Ragalna 1000-1200m, 12.V.1994, M. Sanetra leg.; Prov. Siracusa, 5 km NE Canicattini Bagni, ca. 300m,

17.V.1993 & 11.V.1994, M. Sanetra leg. [host of *S. destefanii*]; Prov. Siracusa, ca. 5 km NE Floridia, ca. 100m, 11.V.1994, M. Sanetra leg. [host of *S. destefanii*];

Calabria - Prov. Reggio di Calabria, ca. 4 km N Bova, ca. 1100m, 14.V.1994; Prov. Reggio di Calabria, near Roghudi, 25 km E Reggio di Calabria, 600-700m, 15.V.1994; Prov. Catanzaro, Terme Caronte, ca. 2 km NW Sambiase, 200-300m, 17.V.1994; Prov. Crotone, 3 km E Savelli, ca. 700m, 19.V.1994 [host of *S. destefanii*]; Prov. Crotone, 2 km NW Umbriatico, ca. 350m, 19.V.1994; Prov. Cosenza, Monte Pollino, ca. 8 km E Mormanno, 1200-1300m, 20.V.1994; Prov. Cosenza, Monte Pollino, 1 km NW Frascineto, ca. 500m, 21.V.1994 [host of *S. destefanii*].

OTHER INVESTIGATED MATERIAL: Eolian Islands, Lipari, III.1924, H. Kutter leg. 3☿☿ (NMB) [tentatively identified as *T. semilaeve*]; Sicily, locality "V", V.1926, H. Kutter leg. 2☿☿, 1☿ (NMB), syntypes of *T. semilaeve siciliense* Santschi; Sicily, Segesta, III.1924, H. Kutter leg. 3☿☿ (NMB) [tentatively identified as *T. semilaeve*]; Sicily, Segesta, III.1924, H. Kutter leg. 2☿☿ (NMB), determined as *T. semilaeve siciliense* by Santschi [host of "*S. huberi* st. *cecconii* v. *kutteri* Santschi", 1 out of 2☿☿ mounted with parasites]; Sicily, Palermo, III.1924 (probably H. Kutter leg.) 3☿☿ (NMB), determined as "*T. caespitum* st. *semilaeve* var. *ernesti* Santschi" by Santschi; Calabria, Sambiase, IV.1920, C. Menozzi leg. 6☿☿, 1☿ (NMB); Apulia, Tremiti Islands, G. Cecconi leg. 3☿☿ (MCG) [host of *S. huberi cecconii* Emery, mounted with parasites]; Apulia, Tremiti Islands, Capraia, VI., G. Cecconi leg. 2☿☿ (MCZ) [host of *S. huberi cecconii* Emery, mounted with parasites]; Apulia, Gargano Peninsula, Manfredonia, 10.X.1961, C. Baroni Urbani leg. 7☿☿ (MCV) [host of *S. huberi cecconii* Emery as determined by Baroni Urbani]; Apulia, Gargano Peninsula, Pèschici, 12.X.1961, C. Baroni Urbani leg. 3☿☿ (MCV) [host of *S. huberi cecconii* Emery as determined by Baroni Urbani]; France, Var, Foret du Dom, Parker leg. 7☿☿ (NMB), determined as *T. semilaeve siciliense* by Santschi; France, Var, Mt. Ferovillet, Parker leg. 3☿☿ (NMB), determined as *T. semilaeve siciliense* by Santschi.

Even though this is the most commonly cited *Tetramorium* species of the Mediterranean, the precise identity and distribution of the taxon has not yet satisfactorily been clarified. André (1883), in the original description, gave "Europe, Africa and Mediterranean Asia" as the range of var. *semilaeve*. According to Emery (1925) the worker material constituting the type series embodies several different taxa. Bondroit (1918) and Emery (1925) treated specimens from Banyuls-sur-Mer (Pyrénées-Orientales, France) as the typical *T. semilaeve*, but no lectotype has been formally designated.

Females of *T. semilaeve* can be distinguished at first sight from those of *T. caespitum* and *T. impurum* by smaller size (compare Tab. 2, 3) and absence of a bulging mesonotum and from *T. diomedeum* and *T. meridionale* by the narrower petiolar nodes (Fig. 7). Their particularly weak to absent rugosity on the mesonotum allows differentiation from *T. brevicorne* and *T.* sp. "Gargano". *T. punctatum* females are very similar to *T. semilaeve* in body shape and structure but are much smaller (see Tab. 2). Intracolonial variability in *T. semilaeve* is specifically pronounced and, in many nests, strikingly dimorphic worker forces are produced. Therefore, much difficulty is encountered during the determination of single workers which may be very similar to those of *T. punctatum*, in particular to the larger specimens. Workers of *T. caespitum*, if small, pale and weakly sculptured, may also not be securely distinguished from *T. semilaeve* (see also López, 1991). Yet, combined electrophoretic data from *G3pdh* and *Idh* loci enable the separation of *T. semilaeve* from the other Italian *Tetramorium* species except *T. meridionale* and *T.* sp. "Gargano" (Tab. 4 pag. 333). For further information on dif-

ferentiation from other congeneric species consult the appropriate sections.

Electrophoretic comparisons of *T. semilaeve* from Banyuls-sur-Mer with our Italian samples revealed only minor deviations in allele frequencies at two loci (Sanetra, unpubl.), which confirm our inclusion of the Italian populations in typical *T. semilaeve*. In Italy, no less than five varieties of *T. semilaeve* have been taxonomically separated from the typical one. Three of them described by Santschi (1927) were stated to be Sicilian endemics. Recently this unrealistic subdivision was uncritically reinforced by Poldi et al. (1995) by listing four different subspecies of *T. semilaeve* for Italy alone. Such a treatment is surely incompatible with a modern subspecies concept, and we try to elucidate the status of these forms as far as possible. *T. semilaeve siciliense* Santschi, 1927 easily emerges as a synonym of *T. semilaeve* upon examination of the syntypes. Other workers filed as *T. siciliense* by Santschi originated from Sicily (Segesta) and France (Var), obviously all typical *T. semilaeve*. *T. semilaeve* var. *jugurtha* Menozzi, 1932, elevated to species rank by Poldi et al. (1995), was also reported from Sicily (Palermo) by Santschi (1921). However, applying this name to Italian material seems highly doubtful, since it is not even known how this North African taxon relates to others in that region.

The range of *T. semilaeve* purportedly covers the entire Mediterranean region. Nevertheless, it seems likely that there exists at least some divergence between a "western" and an "eastern" form, the latter often referred to as *T. punicum* (Smith, 1861) originally described from Israel. Given the insufficiency of the original description along with the types apparently being lost (Santschi, 1920), there is hardly any way to determine to which species the name *punicum* really applies. Thus, *T. punicum* may best be treated as a *nomen dubium*. Specimens assignable to the "eastern" form share a *Gpi* electromorph which is obviously lacking in the western Mediterranean populations and also an *Idh* electromorph very rare in samples from farther west (Sanetra, unpubl.). A borderline might be situated between the Balkan Peninsula and the Middle East, but much more research into this problem has to be done. According to some authors (e.g., Radchenko, 1992b) the species is presumed to be more widely distributed in Transcaucasia and even Central Asia. An electrophoretically investigated sample from Crimea, however, seems to represent a species different from the typical *T. semilaeve* of the Mediterranean.

The majority of localities sampled in southern Italy were dominated by *T. semilaeve*. However, due to its affinity to very warm and dry places it seldom occurs above 1000m. Queens were rarely collected, and thus we regard *T. semilaeve* as monogynous at least in Italy. It often shares its habitat with *T. diomedeum* and sometimes with *T. punctatum* in Sicily and Calabria which likewise are very thermophilous species. The published records suggest (Baroni Urbani, 1971) that *T. semilaeve* becomes increasingly uncommon and localized towards the north, since there have been very few findings north of the Appennines. Given the possibility of confusing *T. semilaeve* workers with *T. caespitum*, all available records from north of the Alps (Santschi, 1927; Werner, 1989; Schulz, 1991) must be regarded as dubious, unless substantiation by the unmistakable sexuals is provided.

***Tetramorium punctatum* Santschi, 1927, stat. nov. [Figs. 6, 8, 15]**

Tetramorium semilaeve André v. *punctatum* Santschi, 1927

Tetramorium semilaeve André v. *liparaeum* Santschi, 1927: **syn. nov.**

Our investigations of types from the Santschi collection at NMB revealed several specimens corresponding to our concept of *T. punctatum* outlined below. Among them there were syntype ☿☿of *T. semilaeve liparaeum* Santschi, 1927 (very small and pale, outside the range of variation observed in *T. semilaeve*) and a syntype ♀ of *T. semilaeve punctatum* Santschi, 1927 identical to ♀♀ from our collections. The syntype ☿☿ of *T. punctatum* originated from a different locality and year than the ♀ type and cannot be excluded to represent *T. semilaeve*. Therefore, we here designate the aforementioned ♀ as lecto type of *T. semilaeve punctatum*. Acting as first revisers according to Art. 24a of the Code (ICZN, 1985), we select *punctatum* as senior synonym over *liparaeum* because the ♀ caste allows species identification more reliably than the ☿☿.

COLLECTING DATA:
Sicily - Prov. Messina, Lipari (Eolian Islands), IV.1993, J. Heinze leg.; Prov. Messina, Francavilla di Sicilia, ca. 300m, 3.VI.1993, M. Sanetra leg.; Prov. Catania, ca. 5 km W Ramacca, ca. 400m, 10.V.1994, M. Sanetra leg.; Prov. Siracusa, near Carlentini, ca. 200m, 10.V.1994, M. Sanetra leg.; **Calabria** - Prov. Reggio di Calabria, ca. 4 km N Bova, ca. 1100m, 14.V.1994; Prov. Crotone, 3 km E Savelli, ca. 700m, 19.V.1994; Prov. Crotone, 2 km NW Umbriatico, ca. 350m, 19.V.1994.

OTHER INVESTIGATED MATERIAL: Lectotype ♀ of T. semilaeve punctatum Santschi (hereby designated; Figs. 8, 15): labeled "Type [red print]"/"T. semilaeve And v. punctatum Sant ♀ [probably Santschi's handwriting] Santschi det. 19 [printed]"/"Sizilien V-26 [handwritten]"/"23 [handwritten]"/"Sicile (Kutter) [handwritten]"/ "LECTOTYPUS *Tetramorium semilaeve punctatum* Santschi det. M. Sanetra, R. Güsten, A. Schulz 1996 [printed on red cardboard]"/"Sammlung Dr. F. Santschi Kairouan [printed]" (NMB); Sicily, Siracusa, III.1924, H. Kutter leg. 2 ☿☿ (NMB), paralectotypes of *T. semilaeve punctatum* [only tentatively identified as *T. punctatum*]; Eolian Islands, Lipari, I.1924, H. Kutter leg. 3☿☿ (NMB), syntypes of *T. semilaeve liparaeum* Santschi; Sicily, Engalos[?]/Siracusa, III.1924, H. Kutter leg. 3☿☿ (NMB), labeled as "types" of "*T. semilaeve* v. *syracusium* Sant." [name never published, but specimens listed as "légère variation" of *liparaeum* in SANTSCHI (1927)].

T. punctatum represents the only distinct taxon that should be recognized among SANTSCHI's (1927) varieties of *T. semilaeve* described from Sicily. It is well characterized by the very small sexuals and the similarly minute and shiny workers. Females resemble those of *T. semilaeve* but are much smaller (see Tab. 2). Apparently there are also subtle structural differences, which, however, we have not thoroughly investigated. In the field it is usually possible, with some experience, to distinguish *T. punctatum* colonies from *T. semilaeve* even without any optical equipment. Yet, conserved samples without sexuals can sometimes be confused with small and pale *T. semilaeve*. The application of biochemical characters proved helpful in this case, since a *G3pdh* electromorph unique among Italian *Tetramorium* species appears fixed

Tab. 2: Differences between ♀♀ of *T. punctatum* and *T. semilaeve*

	HW (mm)	ML (mm)
T. punctatum	0.84 ± 0.02	1.31 ± 0.05
T. semilaeve	1.13 ± 0.05	1.90 ± 0.05

(for both species, based on 10 specimens from different localities in Sicily and Calabria; includes lectotype ♀ of *T. punctatum*: HW 0.84 mm, ML 1.28 mm)

in *T. punctatum* (Tab. 4). From all listed sites, except the island of Lipari, samples were electrophoretically surveyed with consistent results.

T. punctatum is not a frequent species compared to *T. semilaeve* and *T. diomedeum* whose ecological requirements appear very similar. Despite the very small females, the species most likely is oligo- or even monogynous, as we never discovered any queens within the nests. *T. punctatum* inhabits Sicily, the Eolian Islands and Calabria. It remains unknown if its range extends farther north. Some of the literature records deemed to be *T. semilaeve* may actually pertain to *T. punctatum*. Nonetheless, it is almost impossible to trace these from the scarce publication data alone.

We have seen a number of specimens from Greece and Turkey (A. Schulz leg.) that exhibit only minor morphological differences in all morphs compared with Italian *T. punctatum*. Some published species-group epithets in *Tetramorium* from eastern regions (in particular *lucidulum* Menozzi, 1933 and *nitidissimum* Pisarski, 1967) possibly refer to comparable forms, but none of them would have precedence over *punctatum* Santschi, 1927. It is therefore almost certain that *T. punctatum* will stand as the valid name for the taxon, even after a complete taxonomic revision of the Palaearctic *Tetramorium*. Further, we are unaware of any comparable samples from northern Africa despite our collecting activities in Tunisia and Morocco.

Tetramorium brevicorne Bondroit, 1918 [Figs. 2, 11, 16]

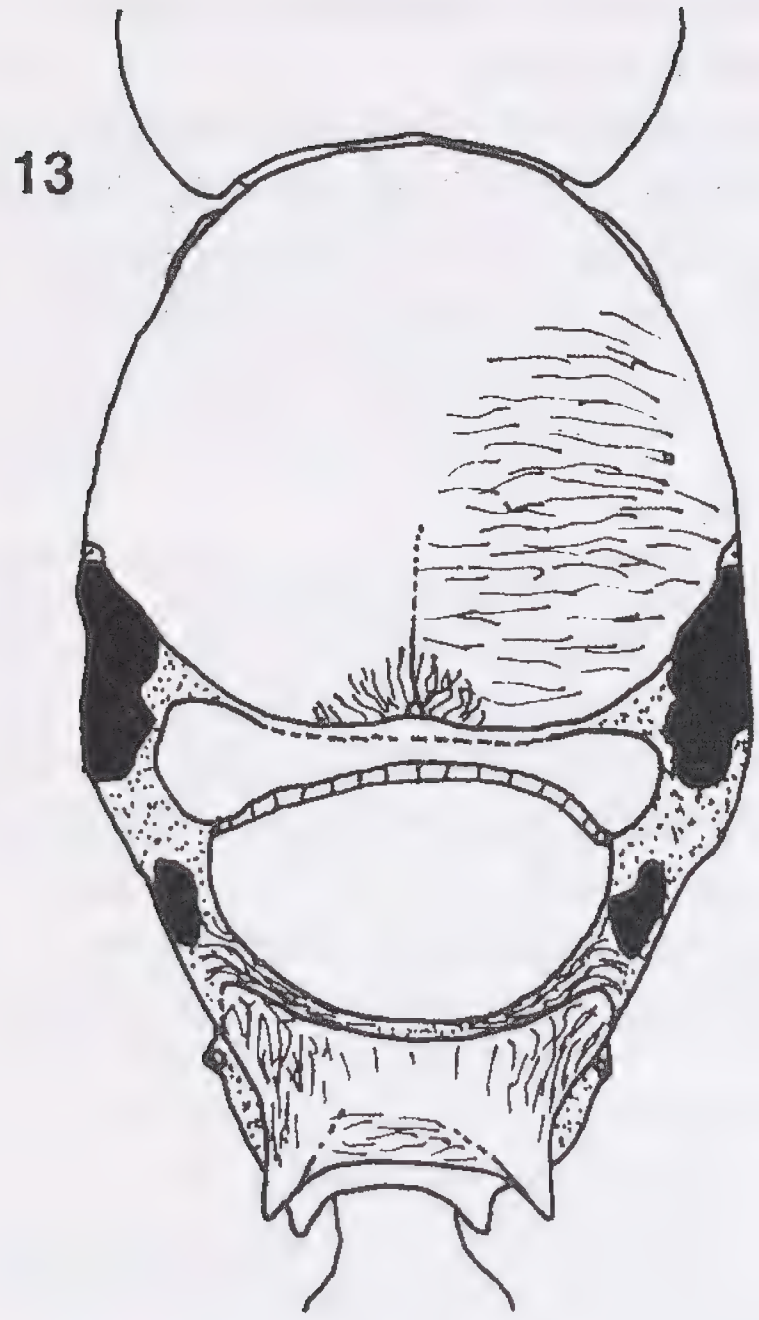
Tetramorium caespitum caespitum var. debilis Emery, 1909 (*partim*; unavailable name)
Tetramorium caespitum subsp. *caespitum var. brevicornis* Emery, 1916 (unavailable name)
Tetramorium caespitum var. *brevicorne* Bondroit, 1918
Tetramorium brevicorne Emery: Baroni Urbani, 1964

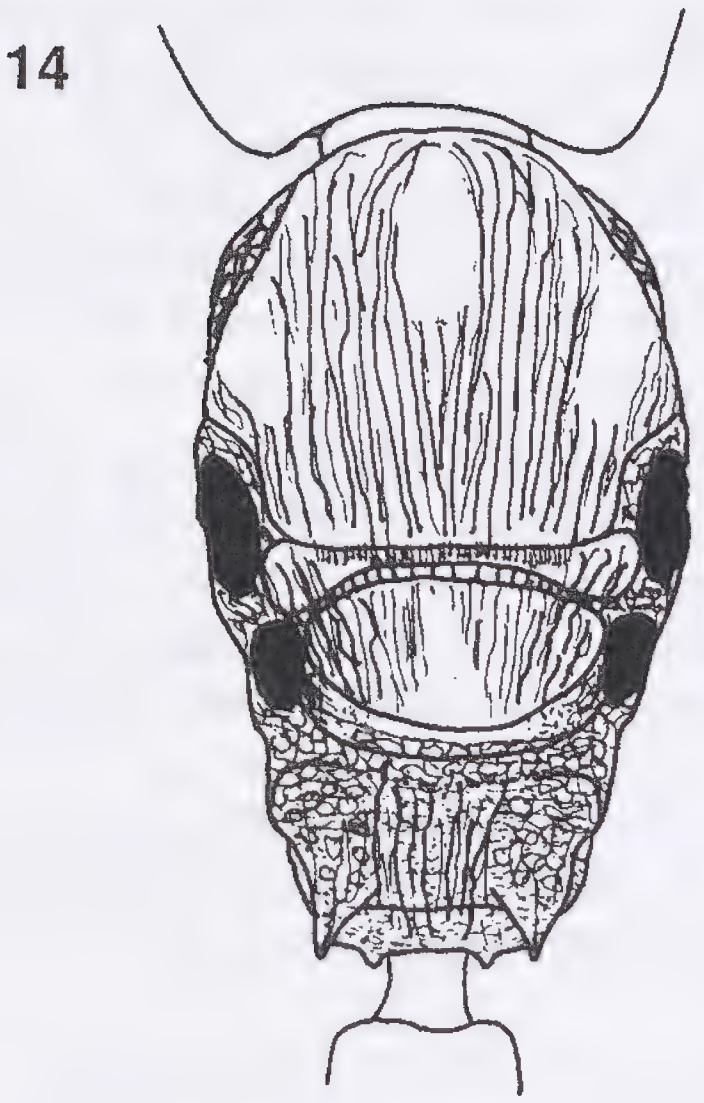
We follow the interpretation by Taylor (1986) that the types of a name made available by elevation from infrasubspecific rank are those specimens designated as the so-called "types" when the infrasubspecific entity was first published, except if the author elevating the name explicitly states otherwise. This procedure seems well supported by the Code in Art. 72(b)(iv), which regulates type designation of names made available by "bibliographic reference to a description associated with an unavailable name" [Art. 12(b)(1)] - a wording clearly applicable to the case in question.

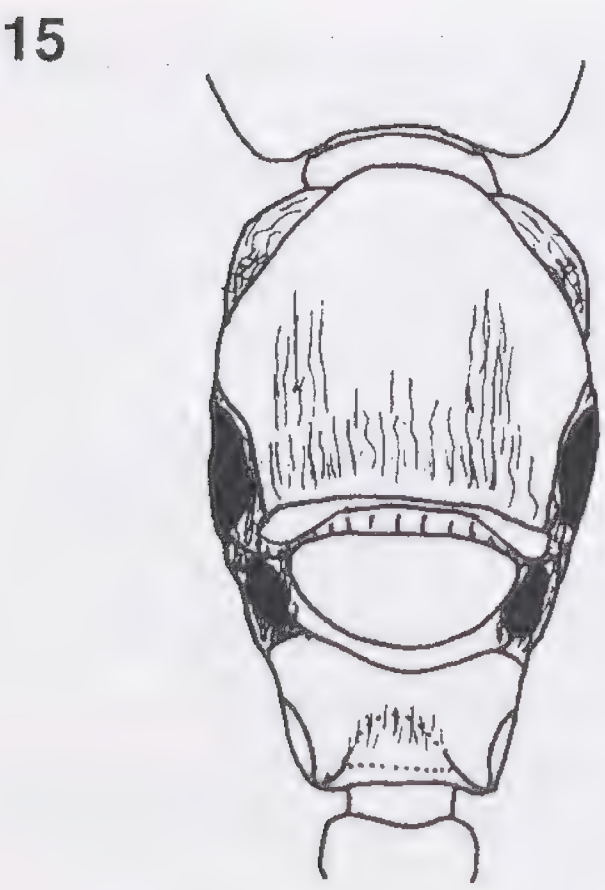
Thus the types of *T. caespitum brevicorne* Bondroit, 1918 are those specimens on which "*T. caespitum* subsp. *caespitum var. brevicornis* Emery, 1916" was based. In MCG, one pin with 8☿☿, 2♀♀ and 2♂♂ from Corsica was found which are to be interpreted as syntypes of *T. caespitum brevicorne* Bondroit. These are all in good accord with our samples from Sardinia. We selected one of the ♀♀ (easier to identify to species than ☿☿) as lectotype and remounted it on a new cardboard on a separate pin with the original labels. The other specimens remain associated on a pin with copies of the labels and were designated paralectotypes. 6☿☿ from Asuni (Sardinia) in coll. Emery constitute additional paralectotypes.

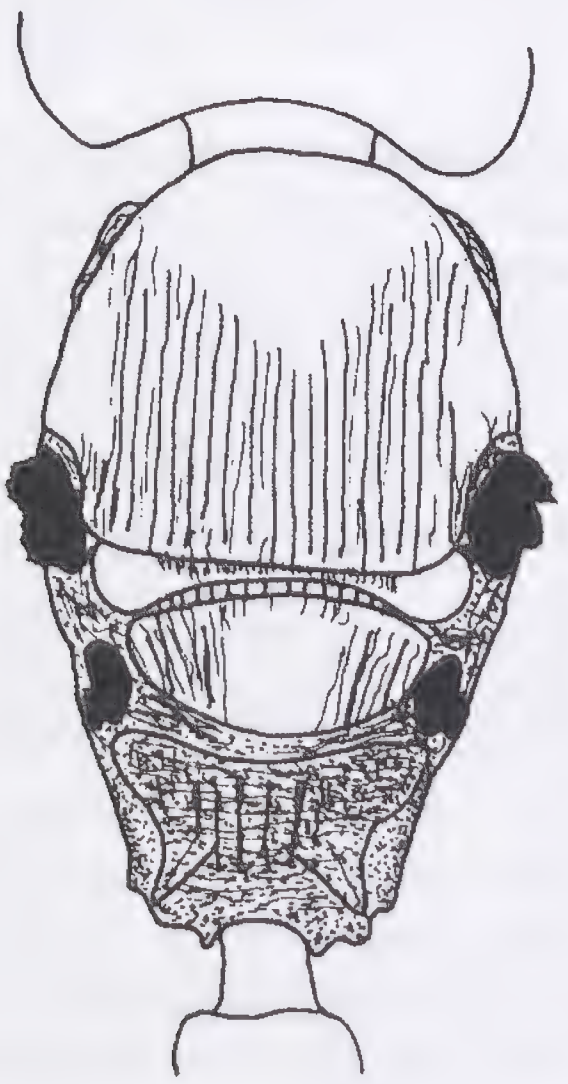
There were three more specimens in MCG filed as "*T. brevicorne*". These ☿☿ from Sorgono (Sardinia) were found to represent *T. meridionale*, a fact already denoted on two associated labels by B. Poldi and J. Casevitz-Weulersse, respectively. These specimens do not match the original description of *T. brevicorne* and are thus excluded from the type series.

COLLECTING DATA:









Figs. 13-16. Mesosoma (dorsal view) of *Tetramorium* ♀♀: 13 - *T. caespitum*; 14 - *T.* sp. "Gargano"; 15 - *T. punctatum* (lectotype); 16 - *T. brevicorne* (lectotype). Drawings by A. Schulz; scale bar 0.3 mm.

Sardinia - Prov. Sassari, Lago del Coghinas 10 km NW Oschiri, ca. 200m, 2.V.1994, M. Sanetra leg.; Prov. Sassari, Monte Limbara, 700-1100m, 3.V.1994, M. Sanetra leg.; Prov. Nuoro, road N. 125 Dorgali-Baunei, ca. 13 km NW Punta Genna Coggina, 800-900m, 4.V.1994, M. Sanetra leg. [host of *S. testaceus*]; Prov. Nuoro, road N. 198 Seui-Ussássai, Cant. Arquerí, 980m, 6.V.1994, M. Sanetra leg.

OTHER INVESTIGATED MATERIAL: Lectotype ♀ of *T. caespitum brevicorne* Bondroit (hereby designated; Figs. 11, 16): labeled "Corse var. Revel[?] [probably Emery's handwriting]"/"brevicorne teste Emery [handwritten]"/"LECTOTYPUS *Tetramorium caespitum brevicorne* Bondroit det. M. Sanetra, R. Güsten, A. Schulz 1996 [printed on red cardboard]"/"Museo Civico di Genova [printed]"/"Collezione Emery [printed]" (MCG); same labels (copied) as lectotype 8☿☿, 1♀, 1♂, part of 1♂ (MCG), paralectotypes of *T. caespitum brevicorne* Bondroit; Sardinia, Asuni, probably A. Krausse leg. 6☿☿ (MCG), paralectotypes of *T. caespitum brevicorne* Bondroit; Sardinia, Sorgono, A. Krausse leg. 3☿☿ (NMB); France, Corsica, Evisa, IX.1922, collector not given, ☿☿ (NMB).

Emery (1916) described this taxon from Sardinia and Corsica as part of a series he had formerly assigned to "*T. caespitum caespitum* var. *debilis* Emery, 1909" from Egypt. Later, Emery (1925) classified *brevicorne* as a variety of *T. biskrense* Forel, 1904 from North Africa and placed these taxa into a morphologically defined group in which the pronotum angles of the females are clearly visible from above. Though this character is found in several not necessarily related species, it allows one to distinguish unambiguously between *T. caespitum* and *T. brevicorne* in Sardinia and Corsica (compare Figs. 13, 16). In addition, the females of the latter are distinctly smaller (Tab. 3). Other distinguishing

Tab. 3: Differences between ♀♀ of *T. brevicorne* and *T. caespitum*

	HW (mm)	ML (mm)
T. brevicorne	1.06 ± 0.02	1.64 ± 0.05
T. caespitum	1.24 ± 0.02	2.18 ± 0.02

(based on Sardinian specimens, 10 for *T. brevicorne* and 4 for *T. caespitum*)

characters are conspicuous longitudinal rugae on the mesonotum (Fig. 16) and cross-meshed sculpturing on the occiput in *T. brevicorne* females.

Workers of *T. brevicorne* have repeatedly been stated to have shorter scapes than those of *T. caespitum* (Emery, 1916; Baroni Urbani, 1964; Casevitz-Weulersse, 1990). This difference, however, is slight at best and does not seem to be practical for species identification. In workers, separation can be better achieved by investigation of the sculpture of the petiolar nodes. A reticulate microsculpture is more or less evenly distributed on the postpetiolus in *T. brevicorne*, sometimes with a tendency to weaken towards the dome but never with a completely unsculptured and shining part of the surface (Fig. 2). In contrast, *T. caespitum* has this microsculpture restricted to the more basal part of the node becoming much weaker dorsally and usually leaving at least a small area completely without sculpture (Fig. 1). Similar but less obvious differences concern the petiolus. It seems worth noting that the main rugosity of the petiolar nodes is very variable in *T. brevicorne* and, though usually stronger than in *T. caespitum*, is not a useful character. In many but not all *T. brevicorne* workers the rugosity on the occiput is developed into a

conspicuous arched pattern never seen to this extent in *T. caespitum*.

As can be inferred from electrophoretic data, *T. brevicorne* has attained greater genetic distance to *T. caespitum* than might be expected from their morphological similarity *T. brevicorne* completely deviated from sympatric *T. caespitum* in Sardinia at four of the investigated loci (Tab. 4). At the loci *Gpi* and *Mdhp*, *T. brevicorne* appears fixed for certain electromorphs occurring, but rarely, in two other Italian species, *T. meridionale* and *T. diomedeum*. We used electrophoretic data to securely assign to either *T. caespitum* or *T. brevicorne* those samples containing workers only, especially the two colonies which were found in association with *S. testaceus*. At least one *T. brevicorne* sample containing sexuals (reared in the laboratory) was available from each collecting locality listed above.

T. brevicorne is quite common in the mountains of Sardinia where it was much more regularly collected than *T. caespitum*. Only rarely, single queens were detected inside the nests of *T. brevicorne*, so monogyny may be presumed notwithstanding the relatively small size of females. We suggest the species to be confined to Corsica and Sardinia, even though it has been quoted twice from Sicily (Donisthorpe, 1926; Baroni Urbani, 1964). These two records were established on worker material only, and might thus be due to determination errors. Poldi et al. (1995) also omitted Sicily from the range given for *T. brevicorne* but without any comment.

Tetramorium sp. "Gargano" [Figs. 4, 12, 14]

COLLECTING DATA:
Calabria - Prov. Crotone, 2 km NW Umbriatico, ca. 350m, 19.V.1994; Prov. Cosenza, Monte Pollino, 1 km NW Frascineto, ca. 500m, 21.V.1994;
Apulia - Prov. Foggia, Gargano, road N. 528, ca. 2 km NE intersection to Carpino, ca. 700m, 23.V.1994, R. Güsten & M. Sanetra leg.

Specimens from three localities in Calabria and M. Gargano could not be clearly assigned to any of the described *Tetramorium* taxa of the western Mediterranean region. As a consequence, it appears to us that these samples represent a species not yet recognized in Italy, but possibly having close relatives elsewhere in the Mediterranean. The new entity is provisionally referred to as *T.* sp. "Gargano" until new information will eventually allow a more definite treatment. Morphologically it mostly resembles the Tyrrhenian *T. brevicorne*, and differential characters are not markedly developed. Workers of *T.* sp. "Gargano" show a strong, mainly longitudinal, rugosity over the whole surface of the petiolar nodes (Fig. 4), approaching (but not reaching) the condition observed, for example, in *T. moravicum* Kratochvil, 1941 and *T. forte* Forel, 1904 (see Fig. in Schulz, 1996: 408). The mentioned sculptural elements are variable but clearly weaker and more restricted in *T. brevicorne*. Nevertheless, some specimens of the latter approach *T.* sp. "Gargano" in distinctness of the rugae but not in extent, as they are invariably absent (in contrast to the reticulate microsculpture) from the center of the nodes in *T. brevicorne*. In females, mesonotal rugosity is apparently both more extensive and slightly stronger developed in *T.* sp. "Gargano" than in *T. brevicorne* (Figs. 14, 16). Additionally, the petiolar nodes appear of a slightly different shape and are more broadly

Tab. 4: Isozyme electrophoretic results of tetramoriine ants from southern Italy at seven informative loci. Variants are assigned due to their migratorial velocity towards the anode from slow to fast in the order *a, e, v, s, m, f, x, u*. "A/ indicates fixed heterozygosity" in *T. diomedeum*. n: number of colonies investigated

Species/Locus	*Gpi*	*G3pdh*	*Idh*	*Mdhp*	*Mdh-1*	*Pgm-1*	*Pgm-2*	n
T. caespitum	*f*	*f*	*x*	*s*	*s*	*v, s, m*	*m, f*	9
T. caespitum Sardinia	*f, x*	*s*	*x*	*s*	*s*	*s*	*m*	2
T. caespitum Si, Ca partim	*f*	*f*	*x*	*s*	*e*	*e, s*	*m*	3
T. impurum	*f*	*f*	*x*	*f*	*s*	*v, s, m*	*e, m, f*	7
T. cf. *impurum* (Gargano)	*f*	*f*	*x*	*f*	*s*	*s*	*e, m*	3
T. diomedeum	*f, x*	*s/f*	*s/f*	*f, u*	*s/f*	*s, m*	*s, m*	9
T. meridionale	*m, f*	*f*	*s, m*	*f, u*	*s*	*s, m, x*	*m*	5
T. semilaeve	*v, f*	*f*	*s, f*	*f*	*s*	*s, m*	*m, f*	22
T. punctatum	*f*	*x*	*s, m*	*f*	*s*	*s*	*m*	5
T. brevicorne	*m*	*f*	*v, m*	*u*	*s*	*s, m*	*m, f*	6
T. sp. "Gargano"	*a, e*	*f*	*e, s*	*f*	*s*	*v, s*	*m*	2
S. huberi	*f*	*f*	*f*	*m*	*s*	*s*	*f*	1
S. alpinus	*f*	*f*	*f*	*m*	*s*	*s*	*f*	6
S. destefanii	*m, f*	*f*	*f*	*m*	*s*	*s*	*f*	6
S. testaceus	*f*	*f*	*f*	*f*	*s*	*s*	*f, x*	5

rounded in *T.* sp. "Gargano" (Figs. 11, 12).

Isozyme electrophoresis yielded more reliable differences between *T.* sp. "Gargano" and *T. brevicorne*. Individuals of these two entities were found to exhibit different electromorphs at three loci (Tab. 4) which strengthens our arguments against conspecificity. Electromorphs at the *Idh* locus compared well to some morphologically similar samples from Greece and Cyprus (SANETRA, unpubl.), indicating affinities to eastern Mediterranean rather than to Tyrrhenian or North African species. The abovementioned samples are probably close to *T. sarkissiani* Forel, 1911 and *T. syriacum* Emery, 1922, respectively. In worker morphology, too, *T.* sp. "Gargano" exhibits close similarities to this loosely defined group of eastern Mediterranean species. Among these not necessarily closely related species, morphological differences in both workers and females appear particularly subtle and will have to be worked out much more meticulously. However, there exist differences at the *Gpi* locus between that group and *T.* sp. "Gargano", and it thus seems possible that this interesting south Italian ant will have to be described as a new species once more information will be obtained. The morphological study of females from all three localities and electrophoresis gave hints to some geographical variation in *T.* sp. "Gargano".

The species appears to be generally uncommon and occurs more frequently only in the center of the Gargano Peninsula (for short description of habitat see *Strongylognathus huberi* section, locality 2a). With so little information available, no meaningful assumptions can be made about habitat preferences and biology.

COMMENTED LIST OF SOCIAL PARASITES

Strongylognathus huberi Forel, 1874 [Figs. 18, 20, 22, 24]

COLLECTING DATA:

Calabria - Prov. Cosenza, Monte Pollino, 4 km NW Morano Calabro, 1000-1100m, 21.V.1994; **Apulia** - Prov. Foggia, Gargano Peninsula. a: road N. 528, ca. 2 km NE intersection to Carpino, ca. 700m, 7.X.1990, A. Buschinger, P. Douwes & R. Schumann leg. and 23.V.1994, R. Güsten & M. Sanetra leg. b: road Monte S. Angelo-Carpino 1,5 km NW intersection to Vico, ca. 700m, 7.X.1990, A. Buschinger, P. Douwes & R. Schumann leg.

OTHER INVESTIGATED MATERIAL: Switzerland, Valais, Fully, A. Forel leg. 3☿☿, 3♀♀, 3♂♂ (MHNG), syntypes; same data 3☿☿, 1♀ (NMB), syntypes; Veneto, Settimo near Verona, 25.X.1957 & 28.V.1959, C. Baroni Urbani leg. 51☿☿ (MCV); Spain, Sierra de l'Aguila, Puerto de Monrepós, V.1967, G. Osella leg. 11☿☿ (MCV), determined as *S. caeciliae* Forel by Baroni Urbani.

Since the discovery of *S. huberi* in Switzerland, very few accounts have further contributed to the knowledge of its biology and distribution. According to literature data the species appears to occur in local pockets scattered through the southern alpine region, the northern Mediterranean and the Iberian Peninsula (e.g., Consani, 1947; Baroni Urbani, 1962; Acosta & Martinez, 1982). Here we highlight three new records from the Gargano Peninsula and one from M. Pollino, which are clearly referable to this species as revealed by comparison with the types. A map (Fig. 24) shows the presently known distribution of this rare parasite in Italy and areas close by.

S. huberi is one of the more characteristic species of the genus and comparatively easy to separate from its congeners. Both females and workers exhibit a strong punctate-reticulate microsculpture on the petiolar nodes which makes these look entirely matt (Fig. 18). The rather shiny appearance of the nodes in *S. alpinus* and *S. destefanii* females is caused by a weaker development of that microsculpture (Figs. 17, 19). Rugosity on the nodes is nonetheless more distinct in *S. alpinus* than in *S. huberi* while entirely absent in *S. destefanii*. On the head and mesosoma *S. huberi* females again appear completely dull owing to conspicuous microsculptural elements. A small frontal area of the mesonotum remains the only shiny surface (Fig. 22). In the two other species, head and mesosoma have the microsculpture reduced in extent, being almost absent on the dorsal mesonotum where only longitudinal rugosity is obvious (e.g. Fig. 23). Surface sculpture in workers of *S. alpinus* and *S. destefanii* is very variable, but as in females the petiolar nodes are more shiny than in *S. huberi*. Additionally, the latter show a smaller unsculptured, shiny portion of the head and mesosoma surface, which, however, is subject to considerable variation.

In the field, workers of *S. huberi* may be recognized by their characteristic slender appearance, due to narrower petiolar nodes, a narrow mesosoma and a different head shape compared with other *Strongylognathus*. The head tends to be parallel-sided with the occipital margin being almost straight (Fig. 20), while in the other two species discussed here, head sides are distinctly convex and the occiput appears appreciably concave (e.g. Fig. 21). In *S. huberi*, heads of females narrow behind the eyes towards the occipital margin which is not the case in the other two species (compare Figs. 6, 7 in Baroni Urbani (1969) for *S. huberi* and *S. alpinus*).

In southern Italy *S. huberi* has not been found at elevations below 700m, but some of the more northerly records originated from the lowlands (Po valley; Marseille). The

species was most commonly collected from *T. caespitum* nests, whereas in southern Italy we found it together with hosts classified as *T. impurum*. This new host record supports the idea that *S. huberi* and *S. destefanii* have different preferences of host species and altitudinal range, though their geographic distributions overlap. The observed syntopic occurrence at a locality on central Gargano appears as an exception.

Locality 1 - Calabria, Monte Pollino

Only five workers of *Strongylognathus* could be extracted from the soil under a limestone rock on a north-facing slope in the southern M. Pollino area. The site was covered by herbaceous vegetation and scattered shrubs and trees. The hosts as determined by electrophoresis belonged to *T. impurum*. Additionally, *S. testaceus* was also found twice at the same spot.

Localities 2a, b - Apulia, Gargano

These two localities at M. Gargano, clearings covered with cultivated grassland and limestone rocks not far south of the Foresta Umbra Reserve, were explored by Buschinger, Douwes & Schumann for the first time. During this excursion one nest of *S. huberi* was found at each site (one containing few alate females). We conducted searches some years later at the very same places and also found two *Strongylognathus* colonies. Remarkably, one of them proved to be *S. destefanii*. The hosts were consistently a form assignable to *T. impurum*.

Strongylognathus alpinus Wheeler, 1909 [Figs. 19, 25]

Strongylognathus huberi alpinus Wheeler, 1909

Strongylognathus alpinus Wheeler: Bondroit, 1918

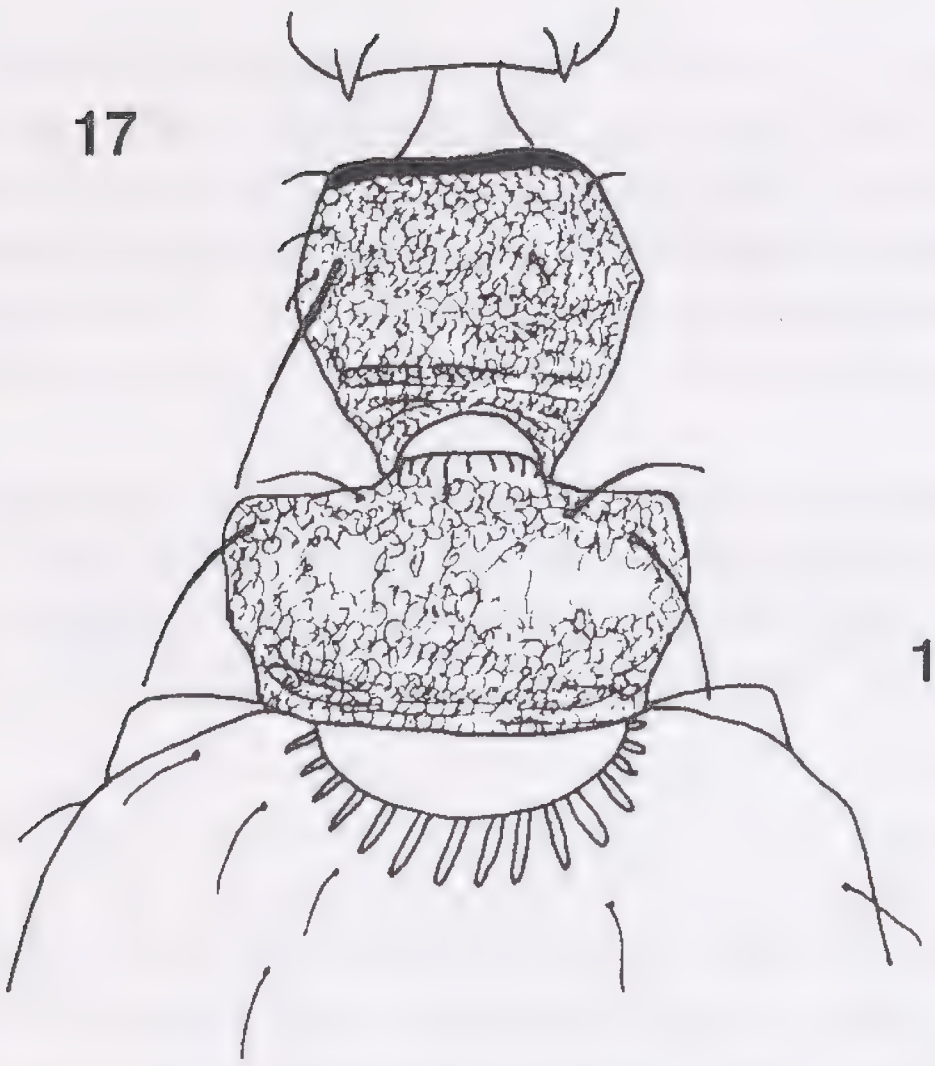
COLLECTING DATA:

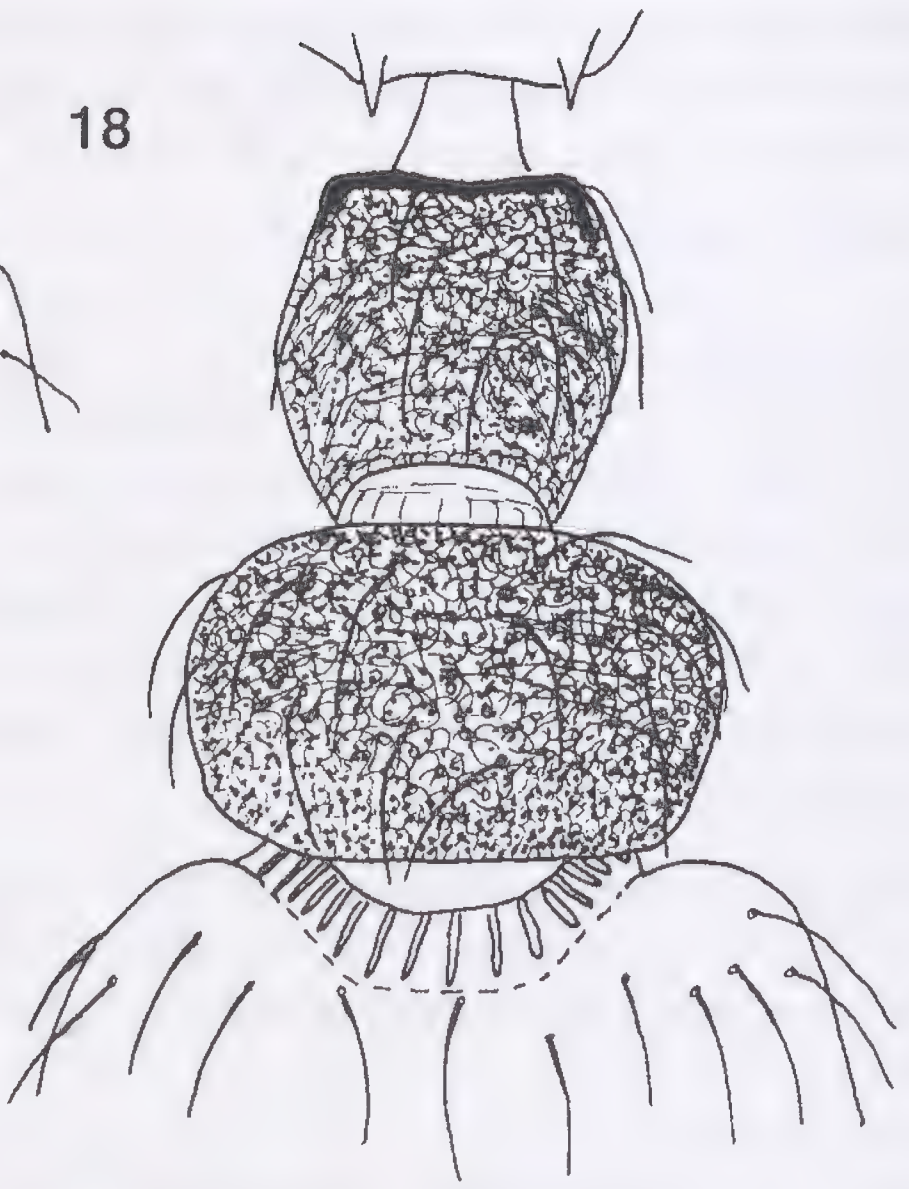
Sicily - Prov. Messina, Monti Nebrodi, road N. 289 Cesarò-S. Fratello, Portella Femmina Morta, ca. 1500m, 12.V.1994, M. Sanetra leg.

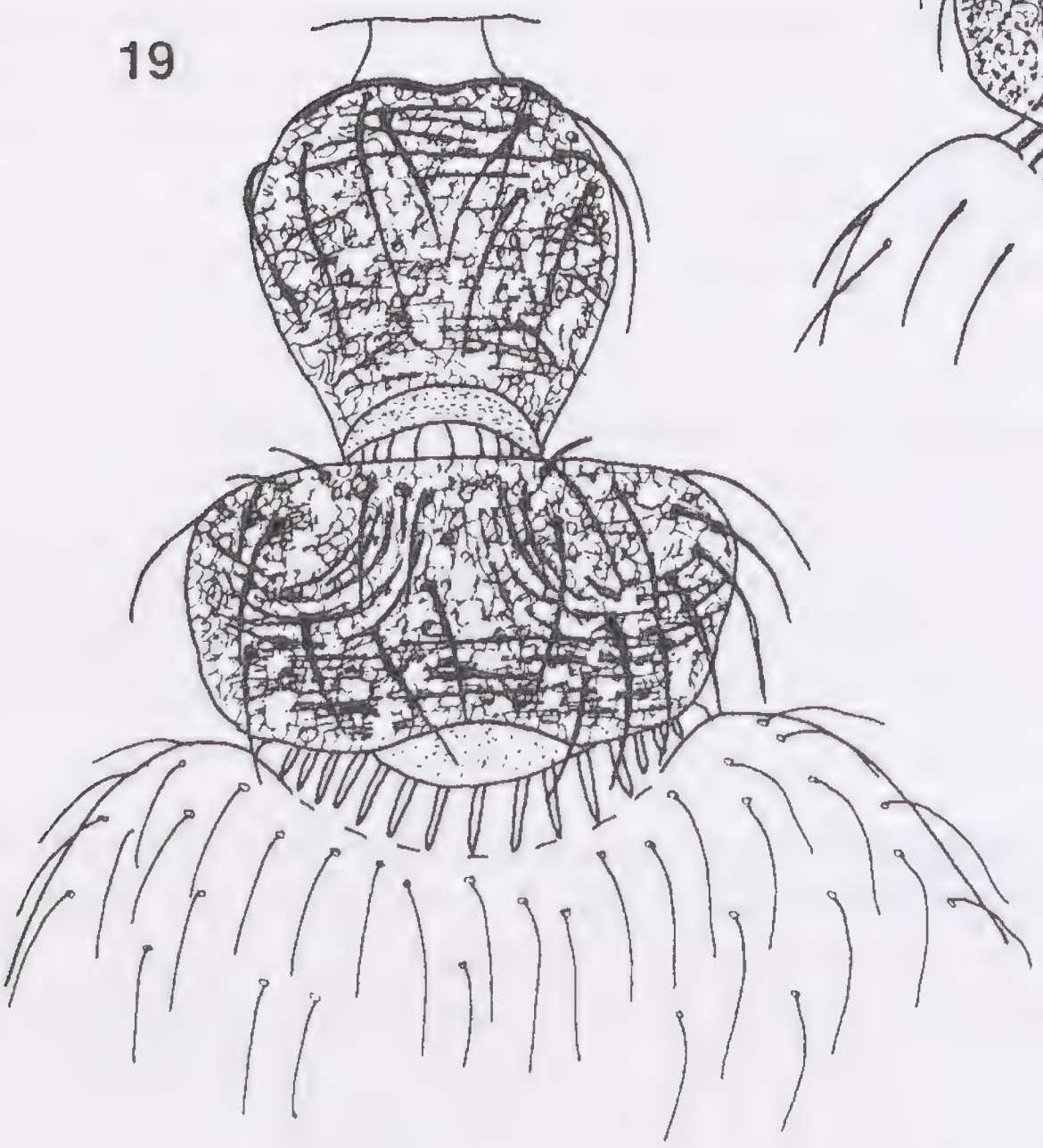
Calabria - Prov. Reggio di Calabria, Aspromonte, Montalto summit, 1950m, 16.V.1994.

Abruzzi - Prov. L'Aquila, Gran Sasso. a: Campo Imperatore, ca. 1900m, 4.X.1990, A. Buschinger, P. Douwes & R. Schumann leg. b: ca. 2 km W Vado di Sole, ca. 1800m, 4.X.1990, A. Buschinger, P. Douwes & R. Schumann leg. c: Prov. L'Aquila, Gran Sasso, ca. 6 km NE Castel del Monte, ca. 1600m, 30.V.1994, M. Sanetra leg.

The south Italian records presented here greatly extend the known range of *S. alpinus*, thus far exclusively known from the southwestern Alps (Fig. 25). The species was described from Valais (Switzerland) and first recorded in France by Buschinger et al. (1981). At present there are no records from the Italian Alps, where the species is very likely to occur. We were able to study females and workers from the Gran Sasso and could not find any differences from alpine populations distinguishable against the considerable individual variation. Only workers were available from the Calabrian and Sicilian localities. These show weaker sculpturing in general than those from the Alps and Appennines, but are very similar in other respects, and we do not hesitate to assign them to *S. alpinus*. Sicilian samples investigated by Poldi (in litt.) nevertheless show some resemblance to *S. pisarskii* Poldi, 1994, the affinities of







Figs. 17-19. Petiolar nodes (dorsal view) of *Strongylognathus* ♀♀: 17 - *S. destefanii*; 18 - *S. huberi*; 19 - *S. alpinus*. Drawings by A. Schulz; scale bar 0.3 mm.

which are treated in the discussion chapter.

In view of strongly differing habitats, *S. alpinus* and *S. destefanii* are surprisingly difficult to distinguish morphologically. Females are usually distinctly larger in *S. alpinus*, though extreme individuals of either species may be comparable in size. As for *S. huberi*, the most reliable characters for species identification are found in the surface sculpture of the petiolar nodes. In *S. alpinus* females, there are always conspicuous transverse rugae on the postpetiole (Fig. 19), while those of *S. destefanii* usually completely lack these and show only punctate reticulation (not unlike *S. huberi* but much weaker, the surface appearing shiny: Fig. 17). Differences regarding the sculpturing of the petiolus are similar but less obvious. Generally, the value of the structure of the petiolar nodes for species distinction is less reliable in workers than in females. At least some regular, continuous longitudinal rugosity is present in *S. alpinus* workers on the often very shiny surface. In contrast, this is weakly, irregularly and discontinuously developed to almost absent in *S. destefanii* with the microsculpture usually more pronounced. Other differences concerning colour, size and structure are present but of limited importance. Note that the development of the propodeal spines shows specifically pronounced variation, rendering it less useful for distinction than implied in available keys (Baroni Urbani, 1969; Poldi, 1994).

S. alpinus is essentially a high altitude species, reported in Italy between 1500 and 2000m and in the Alps from 1700 to 2000m. According to all we know *T. impurum* is the sole host species in the Alps; previous records of *T. caespitum* must be considered erroneous. However, the hosts of Sicilian and Calabrian *S. alpinus* are indeed assignable to *T. caespitum* which replaces *T. impurum* in the southern mountains, the latter cold-adapted species being recorded only as far south as M. Pollino.

Locality 1 - Sicily, Monti Nebrodi

The record is very interesting in that it shows a hitherto unknown existence of a further *Strongylognathus* species on Sicily which inhabits distinctly higher altitudes than the long known *S. destefanii*. On a southwest-facing slope of the Nebrodi mountains the species was fairly common and three nests could be found within a few hours. The host species at that site is *T. caespitum*. In addition, an aggressive conflict between two *Tetramorium* colonies, one of which was infested by *Strongylognathus*, was observed in the field, but characteristic slave-raiding behaviour could not be seen.

Locality 2 - Calabria, Montalto

On the very summit of the Montalto two *Strongylognathus* colonies were discovered on a clearing in a montane beech forest also containing scattered specimens of Silver Fir (*Abies alba*). Both samples were collected relatively close to each other but were ascertained as belonging to different colonies. *T. caespitum* was identified as the host species, by electrophoresis.

Localities 3a, b, c - Abruzzi, Gran Sasso

The presence of *S. alpinus* in the Gran Sasso massif was first discovered during an excursion by Buschinger, Douwes & Schumann. On this mountain plateau the species occurred in rather high population densities, and four nests were found on one day

(Buschinger, pers. com.). Two samples each were taken from site 'a' and 'b'. Surprisingly, one of the former was simultaneously parasitized by both *S. alpinus and S. testaceus* which raises interesting questions about the life history of these species. Some years later, one of us detected only one colony in a nearby locality (site 'c') at somewhat lower elevation despite considerable collecting efforts. Electrophoretic results at the *Mdhp* locus from slaves of the latter sample revealed *T. impurum* as host species, which is certainly true for the other samples as well. Investigation of males from a neighbouring colony confirmed this host species determination.

Strongylognathus destefanii Emery, 1915 [Figs. 17, 21, 23, 26]

Strongylognathus huberi subsp. *rehbinderi* var. *cecconii* Emery in Cecconi, 1908 (unavailable name)
Strongylognathus huberi subsp. *cecconii* Emery, 1916: **syn. nov.**
Strongylognathus cecconii Emery: Baroni Urbani, 1969
Strongylognathus emeryi Menozzi, 1921: **syn. nov.**
Strongylognathus huberi st. *cecconii* v. *kutteri* Santschi, 1927 (unavailable name): material referred to *destefanii* by Baroni Urbani, 1964

COLLECTING DATA:

Sicily - Prov. Siracusa, near Lentini, 300-400m, V.1986, A. Schulz leg.; Prov. Messina, Francavilla di Sicilia, ca. 300m, 2.V.1986, A. Schulz leg.; Prov. Siracusa, 5 km NE Canicattini Bagni, ca. 300m, 17.V.1993 & 11.V.1994, M. Sanetra leg.; Prov. Siracusa, ca. 5 km NE Floridia, ca. 100m, 11.V.1994, M. Sanetra leg.;
Calabria - Prov. Crotone, 3 km E Savelli, ca. 700m, 19.V.1994; Prov. Cosenza, Monte Pollino, 1 km NW Frascineto, ca. 500m, 21.V.1994;
Apulia - Prov. Foggia, Gargano, road Monte S. Angelo-Carpino 1,5 km NW intersection to Vico, ca. 700m, 24.V.1994, R. Güsten & M. Sanetra leg.

OTHER INVESTIGATED MATERIAL: Sicily, near Palermo, T. De Stefani leg. ♀ (MCG), holotype of *S. destefanii* Emery; Sicily, Segesta, III.1924, H. Kutter leg. 2☿☿ (NMB), "types" of "*S. huberi* st. *cecconii* v. *kutteri* Santschi"; Apulia, Tremiti Islands, G. Cecconi leg. 3☿☿ (MCG), syntypes of *S. huberi cecconii* Emery; Apulia, Tremiti Islands, Capraia, VI., G. Cecconi leg. 2☿☿ (MCZ), syntypes of *S. huberi cecconii* Emery; Apulia, Gargano Peninsula, San Marco in Lamis, 8.X.1961, C. Baroni Urbani leg. 3☿☿ (MCV), determined as *S. huberi cecconii* by Baroni Urbani; Apulia, Gargano Peninsula, Manfredonia, 10.X.1961, C. Baroni Urbani leg. 6☿☿, 18♀♀ (MCV), determined as *S. huberi cecconii* by Baroni Urbani; Apulia, Gargano Peninsula, Pèschici, 12.X.1961, C. Baroni Urbani leg. 8☿☿, 5♀♀ (MCV), determined as *S. huberi cecconii* by Baroni Urbani.

A single *Strongylognathus* female collected in the environs of Palermo by T. De Stefani around 1885 was the first record of this genus from Italy, on which the description of *S. destefanii* was later founded (Emery, 1915). Later on, the species was discovered at various other localities throughout Sicily (summarized by Baroni Urbani, 1971; see also Fig. 26). Menozzi (1921) erected the taxon *S. emeryi* from mainland southern Italy being based on a lone female from Sambiase di Calabria. *S. cecconii* Emery, 1916 remained known only from its type locality on the Tremiti Islands (Apulia) and the adjacent Gargano Peninsula (Baroni Urbani, 1962). We here place all three taxa in synonymy. The

holotype of *S. emeryi* could not be examined, but evaluation of extensive material from Sicily and Calabria showed no important morphological differences except in female size, which, however, was not geographically correlated. The mentioned material included the holotype of *S. destefanii*, a female from M. Pollino and the hitherto unknown workers from Calabria which can quite safely be assumed conspecific to *S. emeryi*. Among the investigated specimens from Apulia, those from coastal areas of the Gargano are completely comparable to Sicilian and Calabrian samples, while material from central Gargano and the Tremiti Islands differ by somewhat stronger sculpture on the petiolar nodes and subtle details of head shape and striation. Nonetheless, we regard these differences as insufficient to uphold *S. cecconii* as a separate taxon. Fig. 26 depicts the presently known distribution of *S. destefanii* resulting from the above taxonomic conclusions.

Electrophoretic data are available for three *S. destefanii* colonies from Sicily, two from Calabria and another one from Gargano. Calabrian samples deviated from the others by possessing a different *Gpi* allele in homozygous condition. The number of investigated colonies is too limited, however, to determine whether different populations indeed are fixed for alternate alleles. Heterozygote deficiency in parasites may well result from local inbreeding coupled with small population sizes. Heterozygous genotypes comprising these two *Gpi* alleles have been found to expected degrees in *S.* cf. *silvestrii* Menozzi, 1936 from Crete, a species closely related to *S. destefanii* (Sanetra, unpubl.). These minor genetic differences give no reason to treat *S. emeryi* as a valid taxon. Rather, a pronounced population substructuring can be inferred.

In the majority of nests studied, *T. semilaeve* served as host for *S. destefanii*. Though Emery (in Cecconi, 1908) recorded *T. diomedeum* as slaves of *S. cecconii* at the type locality, we found that host workers associated with the *S. cecconii* types in MCG in fact belong to *T. semilaeve*. There remains one citing of *T. diomedeum* as host of *S. destefanii* by Donisthorpe (1927) who reported two mixed colonies together with *T. diomedeum* and one with *Aphaenogaster semipolita* (Nylander, 1856). Since the latter observation certainly is a misinterpretation, Donisthorpe's host records should generally be treated with caution. In numerous habitats where *T. semilaeve* and *T. diomedeum* occurred together, we found consistently only the former species parasitized by *S. destefanii*, and *T. diomedeum* has otherwise never been reported as host of any other *Strongylognathus* species. Exceptionally, one colony from central Gargano contained host workers assignable to *T. impurum*.

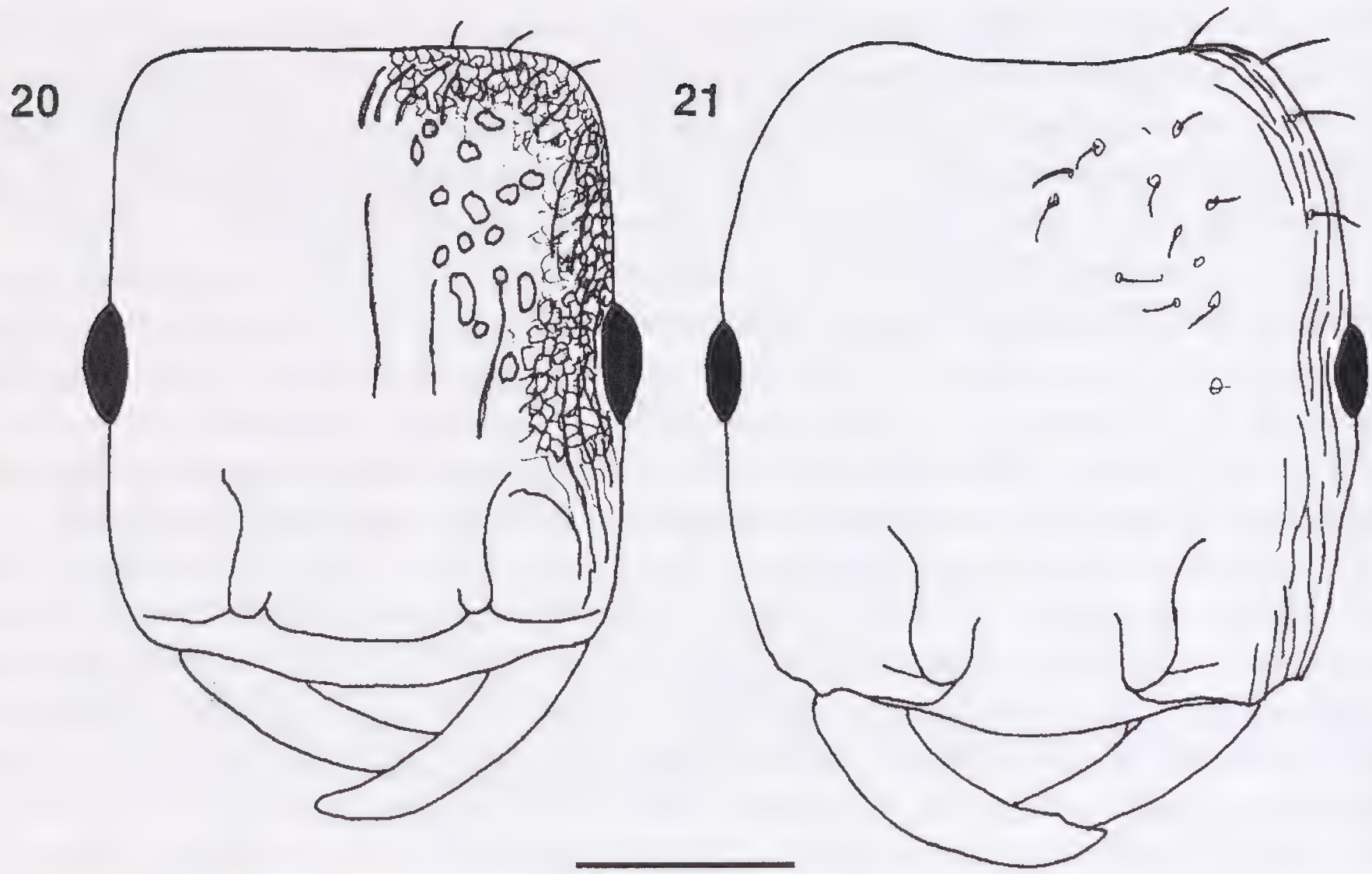
Localities 1, 2 - Sicily, Lentini & Francavilla

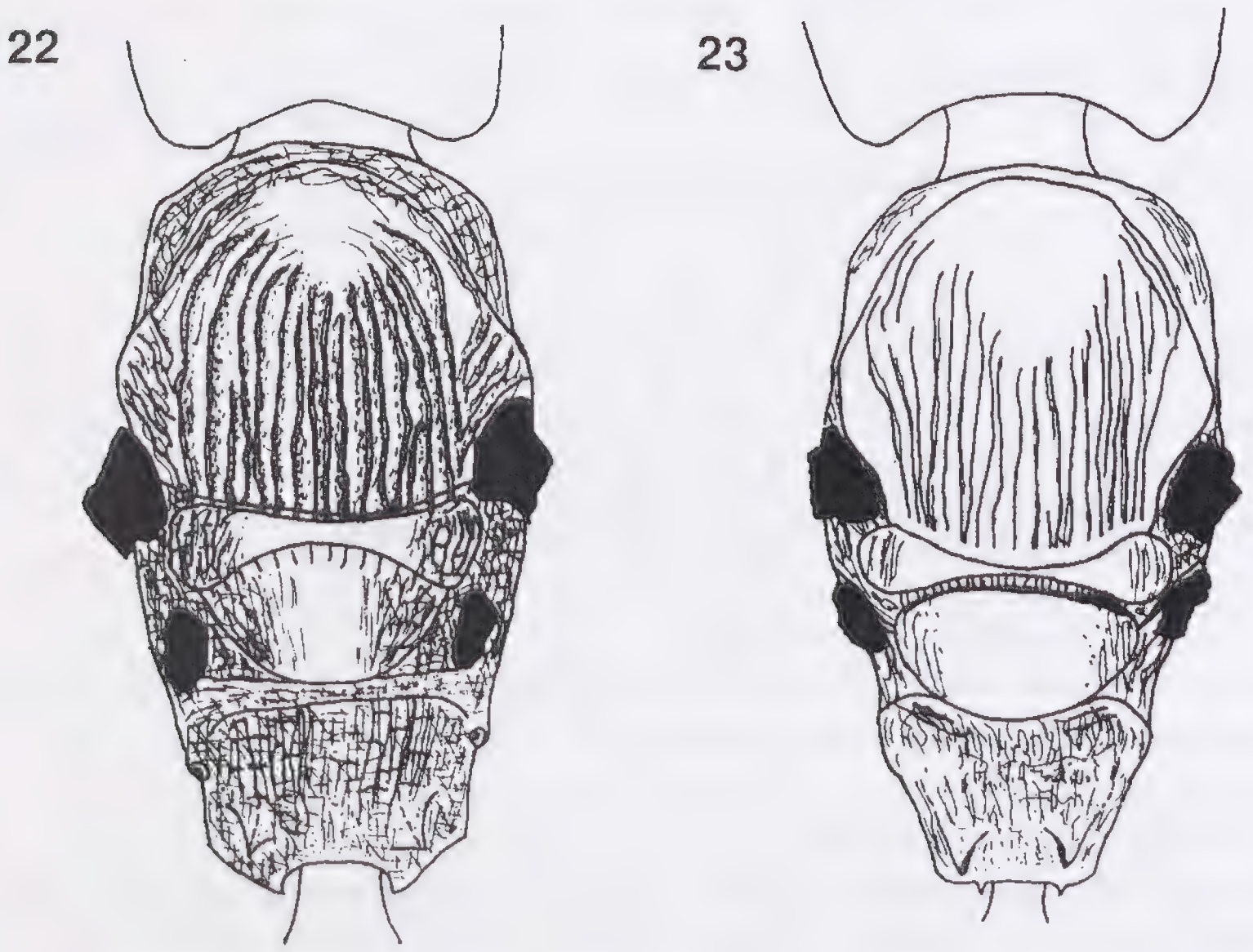
One nest each was found at these two localities containing numerous workers of *Strongylognathus* together with *T. semilaeve* hosts.

Locality 3 - Sicily, Canicattini Bagni

The single nest was located under a rock in pastured grassland with degraded garrigue vegetation. The numerous *Strongylognathus* workers were mixed with *T. semilaeve*. Most probably the same colony was rediscovered one year later, although the place had intensively been grazed by cows.

Locality 4 - Sicily, Floridia





Figs. 20-23. *Strongylognathus Spp.* from Gargano Peninsula. Head (frontal view): 20 - *S. huberi* ☿; 21 - *S. destefanii* ☿; Mesosoma (dorsal view): 22 - *S. huberi* ♀; 23 - *S. destefanii* ♀. Drawings by A. Schulz; scale bar 0.3 mm.

Two colonies were discovered in a typical Mediterranean lowland habitat similar to that recorded before. One sample also contained the *Strongylognathus* queen which had only one antenna and four legs left and died after about four weeks of maintenance in an artificial nest. In both colonies *T. semilaeve* served as host species, though *T. diomedeum* was common at this site.

Locality 5 - Calabria, Savelli

This is the first record of *Strongylognathus* in Calabria since the collection of the single *S. emeryi* female more than 70 years ago. The host species at Savelli was *T. semilaeve*, while *T. diomedeum* was also common there. Despite the comparatively high elevation, this site on the east slope of the Sila Grande showed strong Mediterranean influence with typical vegetation and fauna.

Locality 6 - Calabria, Monte Pollino

Many workers of *S. destefanii* were found in a mixed colony together with *T. semilaeve*. In addition, a dealate *Strongylognathus* female was collected which was most probably the functional queen.

Locality 7 - Apulia, Gargano

S. destefanii was recorded here at a locality where *S. huberi* had been discovered some years earlier. Workers show some morphological peculiarities in comparison with samples from farther south, which, however, are also observed in specimens from the Tremiti Islands. The host species has been classified as *T. impurum*.

Strongylognathus testaceus (Schenck, 1852) [Fig. 28]

COLLECTING DATA:

Sardinia - Prov. Sassari, Monte Limbara, 1000-1100m, 3.V.1994, M. Sanetra leg.; Prov. Nuoro, road N. 125 Dorgali-Baunei, ca. 13 km NW Punta Genna Coggina, 800-900m, 4.V.1994, M. Sanetra leg.;
Calabria - Prov. Cosenza, Sila Grande, S shore Lago Arvo, ca. 1200m, 18.V.1994; Prov. Cosenza, Monte Pollino, 4 km NW Morano Calabro, 1000-1100m, 21.V.1994;
Abruzzi - Prov. L'Aquila, Gran Sasso. a: Campo Imperatore, ca. 1900m, 4.X.1990, A. Buschinger, P. Douwes & R. Schumann leg. b: ca. 2 km W Vado di Sole, ca. 1800m, 4.X.1990, A. Buschinger, P. Douwes & R. Schumann leg.

Characteristic features of this species are the strongly protruding occipital corners in the female castes, low numbers of workers in the infested *Tetramorium* colonies and the absence of dulotic behaviour. The species is thus set apart from the others in the genus, and Bolton (1976) placed it together with the doubtfully distinct *S. karawajewi* Pisarski, 1966 in a species group of its own.

There are quite a number of records of this parasite from mainland Italy coming mostly from north of the Po river (summarized in Baroni Urbani, 1971). In southern Italy, the species has already been known from Apulia and Sardinia (Fig. 28). We are able to present further findings, including some from southern areas (Fig. 28), and a new

host record here.

Locality 1 - Sardinia, Monte Limbara

The existence of *S. testaceus* in Sardinia was first reported by Poldi (1974) and Casewitz-Weulersse (1974). At Monte Limbara, where the species was found again by one of the authors, very few workers of *Strongylognathus* were detected besides the newly recorded host species *T. brevicorne*. Sexual brood of *S. testaceus* could be reared in the laboratory and eclosed in the middle of August.

Locality 2 - Sardinia, Genna Coggina

The nest sample contained a female of *T. brevicorne* and one of *Strongylognathus*. When transferred into an artificial nest, both lived together without visible aggression and often in close association. This situation persists four years after collection. Because both females were confirmed to be functional queens, this observation provides first unequivocal evidence that *S. testaceus* indeed represents the often presumed status of a queen-tolerant inquiline.

Locality 3 - Calabria, Lago Arvo

The colony was found at the southern lake shore close to the edge of a montane pine forest. As revealed by electrophoresis, host workers are assignable to *T. caespitum*. Since *S. testaceus* has already been recorded from Apulia (Baroni Urbani, 1962), its presence in Calabria is not unexpected. However, this record provides further support for the species' extensive range in Europe which is an uncommon feature in permanently socially parasitic ants.

Locality 4 - Calabria, Monte Pollino

Two nests were found together with *T. impurum* as host species within a short time span, suggesting that *S. testaceus* is common at certain heights in the M. Pollino area. This is of interest as we also detected another *T. impurum* colony infested by the slave-maker *S. huberi* in close vicinity.

Localities 5a, b - Abruzzi, Gran Sasso

Two colonies were collected at site 'a' and another one at site 'b', one of the former containing *S. alpinus* in addition. These new records show that *S. testaceus* can occur up to about 2000m in the Mediterranean basin. We know of findings at similar elevations from the French Pyrenees and southern Spain. In the Alps the species has never been recorded from above 1500m as yet. Further, the new sites in the Gran Sasso give reason to believe that there is no distributional gap between the southern and northern Italian populations (Fig. 28).

Anergates atratulus (Schenck, 1852) [Fig. 29]

COLLECTING DATA:
Sicily - Prov. Siracusa, 5 km NE Canicattini Bagni, ca. 300m, 17.V.1993, M. Sanetra leg.;
Lucania - Prov. Potenza, Monte Pollino, near Rifugio De Gasperi, ca. 8 km SE Rotonda, ca. 1600m, 21.V.1994.

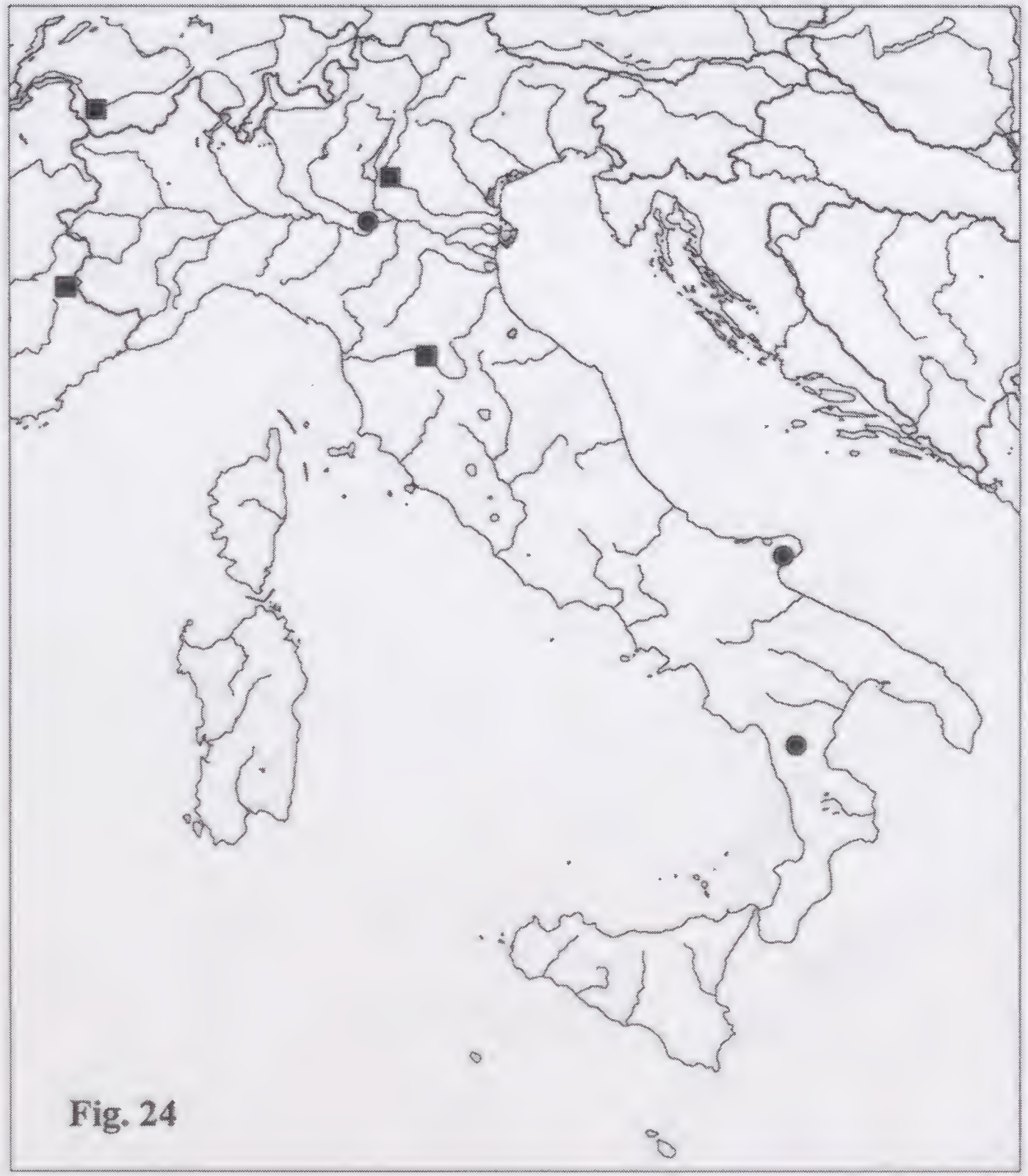


Fig. 24

Fig. 25

Fig. 24. Distribution of *Strongylognathus huberi* Forel, 1874 in Italy and neighbouring areas. Squares: literature data; circles: new records. Further localities are known in France, Spain and Portugal. Fig. 25. Known distribution of *Strongylognathus alpinus* Wheeler, 1909. Squares: literature data; circles: new records.

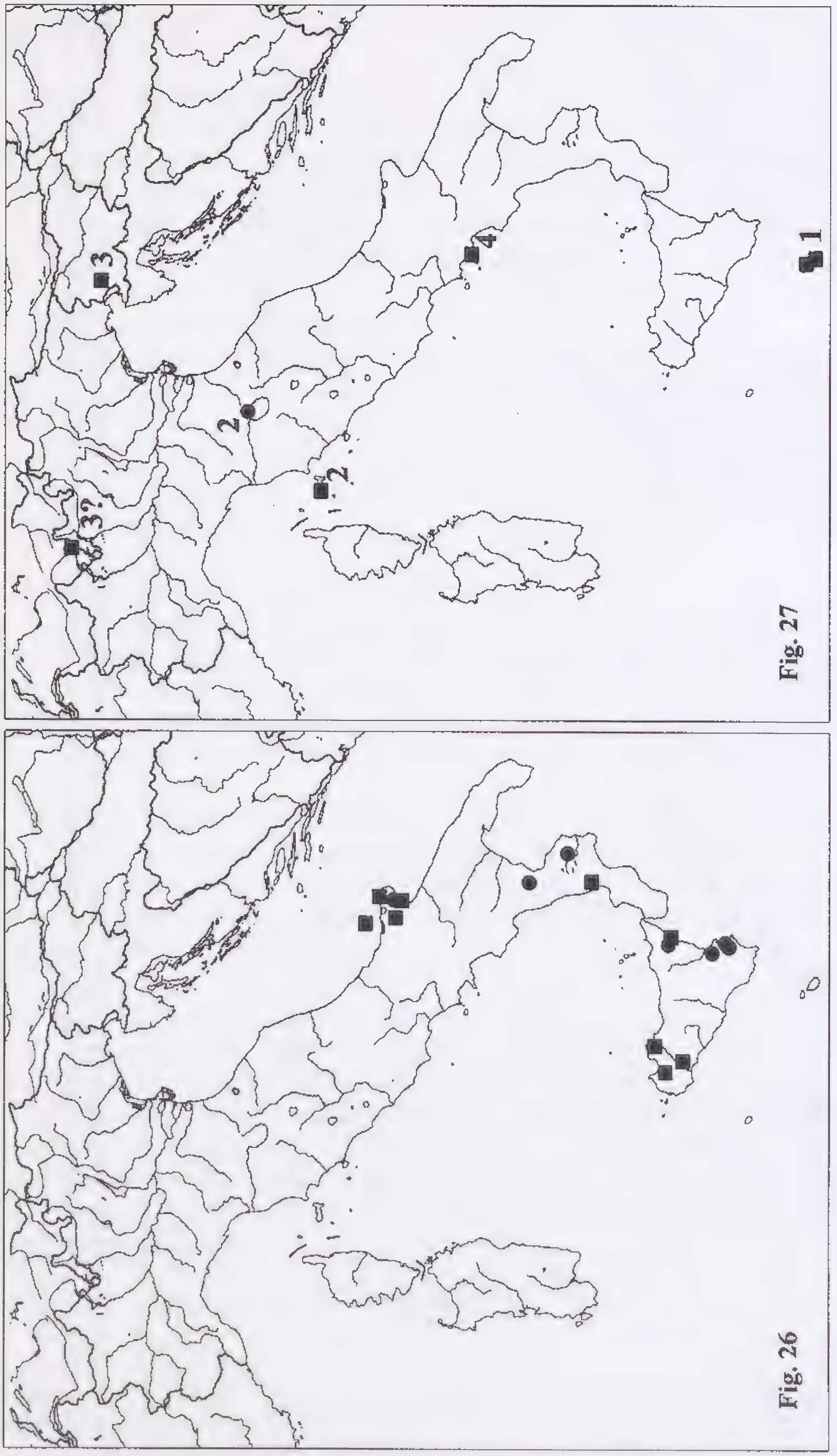


Fig. 26. Known distribution of *Strongylognathus destefanii* Emery, 1915. Squares: literature data; circles: new records. Fig. 27. Records of four described *Strongylognathus* species in Italy and neighbouring areas. Squares: literature data; circle: new record. 1: *Strongylognathus insularis*; 2: *Strongylognathus italicus*; 3: *Strongylognathus alboini* (according to Baroni Urbani, 1969); 4: *Strongylognathus pisarskii*; 3?: *Strongylognathus alboini*.

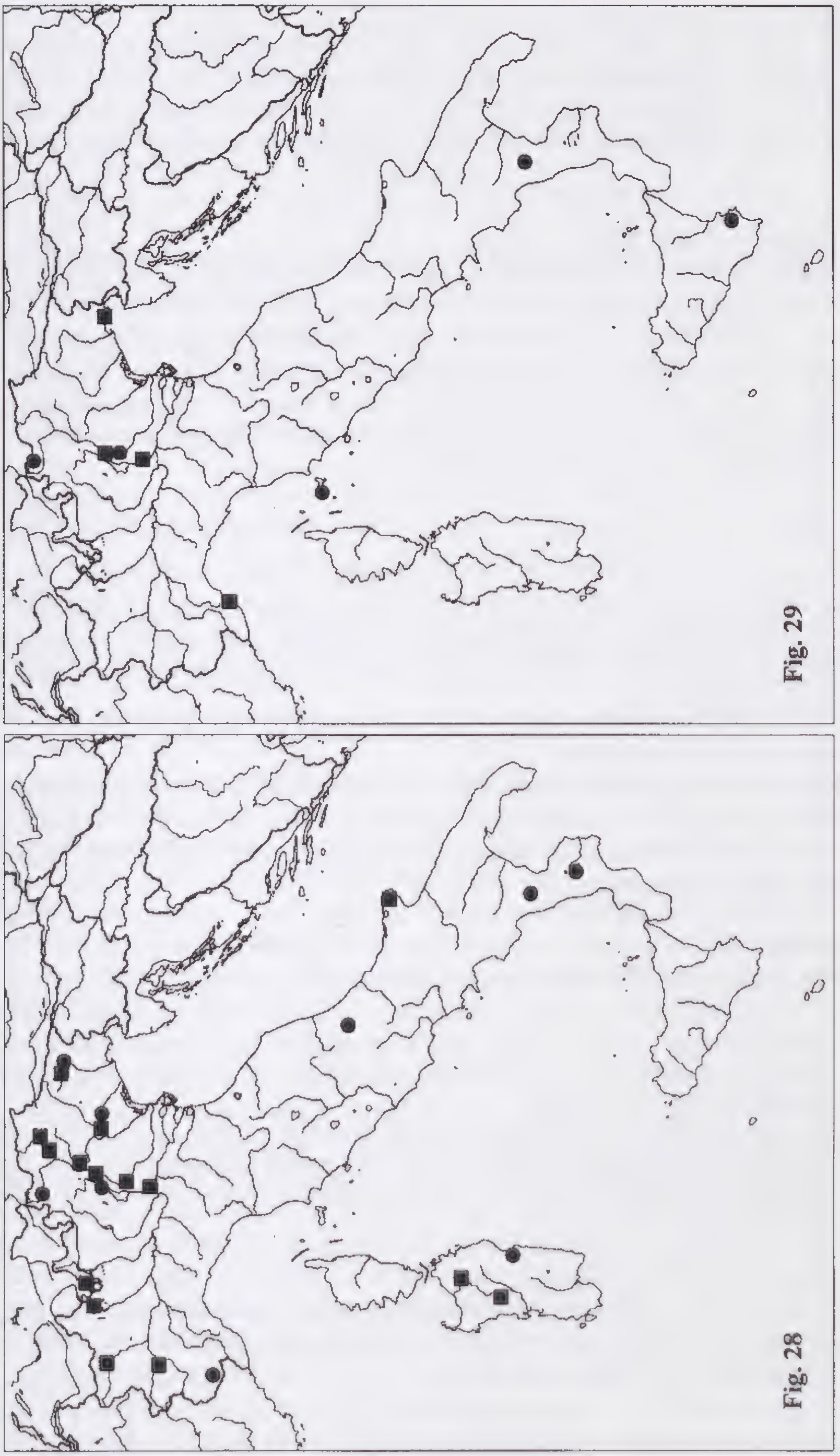


Fig. 28. Records of *Strongylognathus testaceus* (Schenck, 1852) in Italy. Squares: literature data; circles: new records. Localities outside Italy within the map area are not reported. Fig. 29. Records of *Anergates atratulus* (Schenck, 1852) in Italy. Squares: literature data; circles: new records. Localities outside Italy within the map area are not reported.

Although this extreme inquiline has a very wide Palaearctic distribution, in Italy it has so far been known from only three northern localities (Stäger, 1928; Scupola, 1994). The first findings from southern Italy are presented here. Further, there exist some additional records from the Italian Alps and the island of Elba known to us (see Fig. 29 and next chapter).

Locality 1 - Sicily, Canicattini Bagni

Many dealate *Anergates* females, apparently on the way to become physogastric, were retrieved from the nest chambers. Inside the collecting tube considerable egg-laying of these females could be observed. Additionally, male and female pupae of the host species *T. diomedeum* were present. It is surprising that this probably oligogynous species can serve as host of *Anergates*, and the presence of sexual brood of the host is a rather unusual feature, too. Other available information on the life history of *Anergates* hint towards colony foundation in orphaned host colonies.

Locality 2 - Lucania, Monte Pollino

The nest sample contained three physogastric queens and many last instar larvae of *Anergates*, but no *Tetramorium* brood at all. The collected sexual brood of *Anergates* could be reared in the laboratory. The host species was electrophoretically determined as *T. impurum*. Thus, this sample shows the same properties as typical *Anergates* colonies from central Europe and the Alps.

FURTHER RECORDS OF SOCIAL PARASITES

In the following we enumerate some additional new records of *Strongylognathus* and *Anergates* originating from northern parts of Italy and adjacent regions. These are depicted in the maps and referred to in the discussion, but are not treated in the chapter 'Commented list of social parasites'.

Strongylognathus huberi

Lombardy - Prov. Mantova, near Gazzuolo, bank of Oglio river, 23.V.1963, B. Poldi leg.

Strongylognathus alpinus

Switzerland - Valais, Lötschental, ca. 1 km NE Blatten, ca. 1650m, 1.VIII.1992, A. Buschinger, M. Sanetra, R. Güsten leg. [host: *T. impurum*];
France - Hautes-Alpes, ca. 7 km N Chantemerle near Briançon, 1770m, 27.VII.1994, A. Buschinger, M. Sanetra, R. Schumann, R. Güsten leg. [host: *T. impurum*]; Hautes-Alpes, ca. 1 km E ArvieuxSE Briançon, 1700-1800m, 29.VII.1994, A. Buschinger, M. Sanetra, R. Schumann, R. Güsten leg. [host: *T. impurum*].

Strongylognathus italicus Finzi, 1924

Tuscany - Prov. Livorno, Isola d'Elba, Monte Maolo, ca. 200m dir. Monte Capanne, 700-800m, 21.V.1996, M. Sanetra leg. [host: *T.* cf. *impurum*]; Prov. Firenze, Passo della Consuma, 1050m, 20.VIII.1981, V. Assing leg. [host: *T.* cf. *impurum*].

Strongylognathus testaceus

Lombardy - Prov. Brescia, Lago di Garda, Limone sul Garda, ca. 100m, 18.VII.1991, R. Schumann leg. [host: *T. caespitum*];
Veneto - Prov. Treviso, Nervesa della Battaglia near Conegliano, ca. 100m, 25.VII.1991, M. Sanetra leg. [host: *T. caespitum*];
Trentino-Alto Adige - Prov. Bolzano, Val Venosta (Etschtal), Adige riv., Tanas, ca. 1600m, VII.1991, A. Buschinger leg. [host: *T. impurum*];
Piedmont - Prov. Cuneo, Val Gesso near Valdieri, ca. 600m, 10.VII.1992, M. Sanetra leg. [host: *T. caespitum*];
Friuli-Venezia Giulia - Prov. Udine, Monte S. Simeone near Bordano, ca. 300m, 31.V.1996, M. Sanetra leg. [host: *T. caespitum*].

Anergates atratulus
Veneto - Prov. Verona, ca. 5 km N Fumane near Verona, ca. 100m, 26.VII.1991, M. Sanetra leg. [host: *T. caespitum*];
Trentino-Alto Adige - Prov. Bolzano, Val di Senáles (Schnalstal), Maso Corto (Kurzras), ca. 2100m, VII.1991, A. Buschinger leg. [host: *T. impurum*];
Tuscany - Prov. Livorno, Isola d'Elba, Monte Maolo, ca. 200m dir. Monte Capanne, 700-800m, 21.V.1996, M. Sanetra leg. [host: *T.* cf. *impurum*].

Discussion

In the recent past little information has been added to the knowledge of tetramoriine ants in southern Italy. Our extensive morphological and biochemical investigations presented here led to the recognition of eight different species of *Tetramorium* and four species of socially parasitic *Strongylognathus* in the studied regions Sardinia, Sicily, Calabria, Lucania, Apulia and Abruzzi. The rare inquiline *Anergates atratulus* was recorded from Lucania and Sicily for the first time. Other researchers who have dealt with the ant fauna of these regions, like Baroni Urbani (1971) and Poldi et al. (1995), provided inadequate taxonomic concepts for the genera *Tetramorium* and *Strongylognathus*, which make absolute comparisons of species numbers difficult. However, we discovered at least one *Tetramorium* species, *T.* sp. "Gargano", which has not been recognized before and is thus considered new to the Italian ant fauna. Within the range of the otherwise clearly defined species, we have detected some problematic populations which are mainly characterized by different enzyme phenotypes, for example *T. caespitum* from Sardinia. We reject, however, the conclusion by de Haro et al. (1995) that such differences in itself warrant recognition of a population as a separate species.

In Sardinia we noted *T. brevicorne*, *T. meridionale* and *T. semilaeve* as frequent species, while *T. caespitum* was recorded with certainty only from a single locality at Monte Limbara. *T. brevicorne* most commonly inhabits the higher altitude sites. On the other hand, *T. semilaeve* and *T. meridionale* have a more coastal and lower montane distribution. In contrast to its scarcity on the mainland, *T. meridionale* dominates in many places up to elevations of about 800m. The presence of these four *Tetramorium* species in Sardinia is concordant with those listed by Poldi et al. (1995), and an isolated record of *T. diomedeum* (Krausse, 1912) should be interpreted as a misidentification. All of the Sardinian species but *T. brevicorne* are also known from the Italian mainland. For the neighbouring island of Corsica, Casevitz-Weulersse (1990) reports the same four species, plus *T. forte* Forel, 1904, *T. punicum* (Smith, 1861) and an unidentified species. As

far as can be deduced from the given descriptions, these further species are likely to be based on intraspecific variants of the taxa herewithin confirmed for the Tyrrhenian. We suggest that the species composition of Corsica and Sardinia is probably the same.

Sicily and Calabria show great similarities to each other with regard to their *Tetramorium* fauna. Up to about 1000m, the circummediterranean *T. semilaeve* abounds in various types of habitats primarily consisting of xerophilous garrigue and pseudo-steppe formations. *T. diomedeum* often shares these habitats, but generally occurs at much lower population densities. In a few places, however, *T. diomedeum* predominates over *T. semilaeve*. A further species, *T. punctatum*, which is confined to similar ecological surroundings, occurs irregularly in Calabria and Sicily. In southern Italy, the well known *T. caespitum* shows differential preference to either anthropogenically influenced habitats near the coast or alpine meadows in the mountains. Omitting the doubtful records of *T. brevicorne* and *T. jugurtha* from the Sicilian species list, we get a total of four *Tetramorium* species distributed on that island with certainty.

Calabria as the southernmost region of the Italian mainland harbours three additional species that have not yet been found in Sicily. A hitherto undetected species, provisionally named *T.* sp. "Gargano", appears to be very scarce. Only two colonies could be obtained from different sites during appreciable collecting efforts in Calabria. Concerning *T. meridionale*, there exists a single citation from Sambiase di Calabria by Menozzi (1921), and the species can therefore be presumed to be very local in mainland southern Italy. Our new record of *T. impurum* at M. Pollino may be situated at the species' southern limit of distribution. Further south, it seems to be replaced by *T. caespitum* in the mountains. We do not expect *T. impurum* to be discovered in Sicily in the future, whereas the two formerly mentioned species may be present in Sicily, but probably local and rare.

In Apulia we have studied only the Gargano Peninsula more thoroughly and could report two species from there, namely *T.* sp. "Gargano" and a form probably belonging to *T. impurum*. It seems also possible that the latter variant constitutes a separate species specifically adapted to submediterranean environments contrasting with those typically inhabited by *T. impurum*. Amazingly enough, in this relatively well explored small area we collected, within a short time span, more problematic taxa than in Sardinia, Sicily and Calabria combined. There are indications from enzyme studies that *T.* sp. "Gargano" may have affinities to the eastern European and Asian fauna, which seems conceivable since the Gargano Peninsula was formerly linked to the Balkan region by a land bridge in the middle Miocene (Azzaroli & Guazzone, 1980). After compilation of the published records, at least five *Tetramorium* species can be reliably ascribed to the Apulian fauna. *T. diomedeum* and *T. semilaeve* are reported from the Tremiti Islands and a few localities along the coast (Baroni Urbani, 1971). Various records listed by Baroni Urbani (1971), some possibly dubious, pertain to *T. caespitum*.

In the region Abruzzi, *T. impurum* could be ascertained for the first time to occur in the Gran Sasso massif. This species seems to be restricted to elevations above 1000m in the Appennine mountains, probably reflecting a climatically induced retreat after the last glaciation, as is known from other cold-adapted species in southern Europe. Two further species, *T. caespitum* and *T. semilaeve*, have been reported from Abruzzi (Baroni Urbani,

1971). Such a species composition, sometimes including *T. meridionale* as additional element, appears characteristic for the northern Mediterranean region.

The Italian *Tetramorium* fauna as a whole is nearly complete with the species treated in this work for the southern part of the country. A recent survey of the ant fauna of the Pelagian Islands and Pantelleria in the channel between Sicily and Tunisia indicated North African affinities (Mei, 1995). Additional *Tetramorium* taxa reported from there that may be different from those occurring on the southern mainland and Sicily are *T. biskrense* Forel, 1904 (given as ssp. *kahenae* Menozzi, 1934 by Mei, 1995) and *T. pelagium* Poldi in Mei, 1995. However, without a revision of the North African *Tetramorium* species nothing can be said about the value of these assignments. As regards northern Italy, *T. semilaeve italicum* Menozzi, 1932 from Tuscany is probably a synonym of *T. semilaeve* or *T. caespitum*. "*T. scalenum* Le Moli & Rosi, 1991" (ascribed to Poldi in litt.) cited for the central Italian Appennines clearly is a *nomen nudum*, for no description is provided in the published account. "*T.* sp. prope *caespitum*" reported by Rigato & Sciaky (1989) from the Maritime Alps of Italy most probably is *T. rhenanum* Schulz, 1996 from the adjacent French Alps (Schulz, 1996), a taxon close to *T. moravicum* Kratochvil, 1941. For all we know, this is the only distinct species from the northern mainland not yet recorded from southern Italy.

The large amount of new material along with our subsequent studies revealed that southern Italy harbours four valid species of *Strongylognathus* which are *S. huberi*, *S. alpinus*, *S. destefanii* and *S. testaceus*. We attempted to work out differences between these species by showing and describing typical features rather than creating a possibly misleading key. It appears that, in *Strongylognathus,* the application of standard taxonomic measurements as employed by Baroni Urbani (1969) and Poldi (1994) suffers from the restricted number of available nest series and the large amount of intraspecific variation. We are quite convinced that worker size, scapus length and width of nodes upon which these authors based their taxonomic conclusions are not valuable characters at least regarding the material presently available. The same applies to colour of petiolar nodes, size of epinotal spines and structure and extent of propodeal rugosity used in the keys to Italian *Strongylognathus* species in the above-mentioned works. In these as well as in Poldi et al. (1995) the arrangement of species differs from our concept with respect to the taxa *emeryi* and *cecconii*, which we consider synonyms of *S. destefanii*.

Three more species of *Strongylognathus* have been cited for the Italian fauna (Poldi et al., 1995), and a further one from Malta (Fig. 27). The latter, *S. insularis* Baroni Urbani, 1968 is closely allied to *S. destefanii* and *S. afer* Emery, 1884 from North Africa, but more information is required to evaluate the status of these three taxa relative to each other. The other reported forms, *S. italicus* Finzi, 1924, *S. alboini* Finzi, 1924 and *S. pisarskii* Poldi, 1994, have primarily been compared with *S. alpinus*. Worker material of *S. italicus* from Elba (see the preceding chapter), though showing close affinities to *S. alpinus*, cannot be ascribed to any of the clearly defined species listed in the present study. Thus, *S. italicus*, described from a single female (Finzi, 1924a), is probably valid. A new mainland record of *Strongylognathus* near Florence (see preceding chapter and Fig. 27) also represents this species, which obviously differs from *S. alpinus* in its ecological preferences. The relations of the other two forms mentioned above cannot presently be determined with certainty.

Nonetheless, the attribution of *S. alboini* to the Italian fauna (Baroni Urbani, 1971; Poldi et al., 1995) is erroneous: the two reported localities for this species (Finzi, 1924b; Kutter, 1952) are in Slovenia and Switzerland, respectively (see Fig. 27).

S. testaceus appears to be the sole representative of *Tetramorium*'s social parasites extending to Sardinia. Neither a species of the *S. huberi* group nor *A. atratulus* has ever been discovered on that island (e.g., Baroni Urbani, 1971). In Sicily and Calabria *S. destefanii* and *S. alpinus* can be found, but each species depends on clearly different climatic conditions. *S. alpinus* is known exclusively from upper montane to subalpine grasslands above 1500m whereas *S. destefanii* typically prefers lowland habitats near the coast, even inhabiting cultivated land. In southern Calabria *S. testaceus* has been found as an additional species at moderate elevations of about 1000m. Passing northwards to M. Pollino there are three species of *Strongylognathus* that occur sympatrically, *S. testaceus*, *S. huberi* and *S. destefanii*. The latter two show obvious differences in their vertical distribution, *S. huberi* occurring in the same range as *S. testaceus*. Moreover, it seems even possible that *S. alpinus* will be discovered at higher elevations as the fourth *Strongylognathus* species of the M. Pollino. A quite similar pattern of differential niche specificity is observable at the Apulian M. Gargano. Here, *S. huberi* and *S. testaceus* are known to live exclusively in the mountainous region in the center of the peninsula, whilst *S. destefanii* mainly inhabits the coastal strip but also penetrates into the mountains. *S. destefanii* has adapted to very dry and warm places and the Gargano area might be the northern limit of its range. More detailed observations from these contact zones between different *Strongylognathus* species promise to be of high interest.

Considering all our present knowledge about the distribution of different *Strongylognathus* species the picture emerges that the inquiline *S. testaceus* can cohabit with every species of the *S. huberi* group. In contrast, different species of the latter group have only been found on one occasion to occur syntopically. It can be imagined that resource competition on host species nests is much stronger among slave-makers than between slave-makers and inquilines. A further example is provided by a finding of *S. destefanii* and *A. atratulus* in Sicily where both species had established their nests only few meters apart. On the Gran Sasso at a height of about 1800m, *S. alpinus* and *S. testaceus* have even been found within the same *Tetramorium* colony. Since *S. testaceus* is a queen-tolerant inquiline, we suggest that *S. alpinus* had conducted a slave-raid on the *S. testaceus* colony that was afterwards incorporated into the slave-makers' society. As observed during laboratory experiments, host colony incorporation is perhaps not an unusual outcome of *Strongylognathus* slave raids (Sanetra & Buschinger, 1996). Another case of coexistence of a slave-maker and an inquiline has recently been detected in the mountains of Elba where *S. italicus* and *A. atratulus* inhabited the same nest of *T.* cf. *impurum* (see preceding chapter).

In accordance with different patterns of vertical distribution, species of *Strongylognathus* have obviously acquired several specializations in host use. As shown previously, climatic parameters prevailing at certain altitudinal ranges strongly influence the composition of the *Tetramorium* fauna. *T. semilaeve*, predominant in the lowland, probably constitutes the sole host species of *S. destefanii* in Sicily as well as in Calabria. *S. alpinus* exploits nests of *T. caespitum* in Sicily and Calabria and *T.*

impurum in the Gran Sasso, which are the only hosts available at the elevation inhabited. Similarly, *S. testaceus* has always been found together with one of these two host species (except for *T. brevicorne* in Sardinia) and thus apparently becomes a species of higher altitudes in the south. However, it remains an open question whether it can also survive in mixed colonies together with *T. semilaeve*. Records of *S. huberi* are very scarce at present and do not justify any general conclusions. The hosts recorded by us and other authors for Italy, however, consistently belong to the *T. caespitum* group (sensu Radchenko, 1992a).

Owing to lack of information the usual pattern of host use of *A. atratulus* in southern Italy cannot be elucidated. It seems likely that this inquiline most frequently depends upon *T. caespitum* and *T. impurum* due to its preference for higher elevations as known from other regions, especially the Alps (pers. obs.). Furthermore, its probable dependence on orphaned host colonies should favour exploitation of monogynous host species which are prone to provide such kind of target colonies. In Calabria we found *A. atratulus* together with *T. impurum* at 1600m on M. Pollino. The single colony discovered in Sicily at 300m contained *T. diomedeum*, as new host species. The composition of the infested colony with developing sexual brood of the host species raises many questions. As colonies being parasitized by *Anergates* usually contain no *Tetramorium* brood at all, this population may have developed different life habits. However, the possibility cannot be ruled out that *Anergates* had accidentally been adopted into this colony, despite the presence of one or more host queens. In the lowlands, *A. atratulus* might be more adaptable to monogynous *T. semilaeve*, though no such records are presently available.

The findings of *A. atratulus* in southern Italy presented in this study are the only two records from this region thus far (see Fig. 29). Yet, there are reasons to believe that the species occurs throughout Italy without considerable gaps. As a workerless inquiline *A. atratulus* can be easily detected only within a limited period from June to August when winged females are present in the nests. Since most of the social parasites like *Anergates* are usually both local and rare, new records have always been difficult to obtain. As a consequence, many of the existing populations still await to be discovered. Further collecting activities and detailed field studies will be necessary to improve our understanding of distribution, habitat requirements and biology of these fascinating ants.

ACKNOWLEDGEMENTS

We sincerely thank the following persons who enabled us to see relevant material from different museums and were all very helpful: Valter Raineri (Genova), Lorenzo Sorbini† and Roberta Salmaso (Verona), Stefan P. Cover (Cambridge), Michel Brancucci (Basel) and Ivan Löbl (Genève). We are also very grateful to Bruno Poldi (Mantova) for examining some of our material and letting us use his unpublished record of *Strongylognathus huberi*. Alfred Buschinger (Darmstadt), Per Douwes (Lund), Ralf Schumann (Darmstadt), Jürgen Heinze (Erlangen) and Volker Assing (Hannover) also shared records and material from their excursions. A. Buschinger (Darmstadt) is additionally thanked for helpful suggestions on the manuscript. The distribution maps were created using the program DMAP for Windows by Alan Morton (Windsor) who was also very helpful in solving some problems with the maps. Ward Tomlinson (Darmstadt) kindly improved the English. Parts of the studies were supported by a grant of the Deutsche Forschungsgemeinschaft to A. BuschingerBu 310/26-1. Two referees made very profitable comments on the manuscript.

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REGISTRATO PRESSO IL TRIBUNALE DI GENOVA AL N. 76 (4 LUGLIO 1949)
Prof. Cesare Conci - Direttore Responsabile
Spedizione in Abbonamento Postale 50 % - Quadrimestrale
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